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SEQUENCE LISTING

<110> Microbiology & Biotechnology Limited  
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<120> Proteins

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<140> PCT/GB99/02444

<141> 1999-07-27

<150> GB 9816335.5

<151> 1998-07-27

<150> US 60/125163

<151> 1999-03-19

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<170> PatentIn Ver. 2.1

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Pro Glu Gln Tyr Ser Lys Glu Ile Ala Lys Asn Asp Thr Lys Gln Ser  
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Asp Val Lys Ser Tyr Glu Thr Ile Thr Ser Lys Gly Lys Phe Gly Gln  
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Gln Leu Lys Ala Ala Asn Ser Tyr Val Thr Gly Pro Leu Phe Leu Ser  
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Val Gly Asp Thr Leu Phe Gly Lys Ser Gly Glu Asp Ala Lys Gly Thr  
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Ala Phe Leu Gly Val Lys Leu Tyr Ala Val Asn Gln Ala Pro Ala Gly

290

295

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&lt;212&gt; DNA

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Glu Thr Ser Leu Thr Met Ala Thr Ala Ser Thr Glu Ser Ser Ser Glu  
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Ala Glu Lys Gln Glu Lys Thr Gln Pro Thr Asp Ser Glu Thr Ala Ser  
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Thr Glu Thr Ser Ser Ser Asn Glu Ser Ser Ser Ser His Gln  
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Arg Tyr Gly Ile Lys Ala Glu Gln Leu Asp Gly Tyr Leu Lys Ser Leu  
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225 230 235 240  
  
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Gln Lys Leu Ser Ser Gly Gln Leu Asn Thr Val Thr Glu Gly Gly Val		
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Tyr Tyr Thr Asp Asn Ser Gly Thr Gly Lys Arg Arg Ala Gln Ile Met		
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Glu Asp Leu Asp Arg Trp Ile Asp Gln His Gly Gly Thr Pro Glu Ile		
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Pro Ala Ala Leu Lys Ala Leu Ser Thr Ala Ser Leu Ala Asp Leu Pro		
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Ser Gly Phe Ser Leu Ser Thr Ala Val Asn Thr Ala Ser Tyr Ile Ala		
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Ser Thr Tyr Pro Trp Gly Glu Cys Thr Trp Tyr Val Phe Asn Arg Ala		
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Lys Glu Leu Gly Tyr Thr Phe Asp Pro Phe Met Gly Asn Gly Gly Asp		
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Tyr Ala Val Ser Phe Ser Pro Gly Gln Ala Gly Ala Asp Gly Thr Tyr		
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Gly His Val Ala Ile Val Glu Glu Val Lys Lys Asp Gly Ser Val Leu		
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Gln Glu Gln Glu Ile Ala Ser Phe Gln Glu Ile Asn Gln Met Thr Phe  
65 70 75 80

Val Lys Asn Met Arg Thr Met Thr Tyr Asp Val Met Phe Asp Pro Leu  
85 90 95

Val Leu Leu Phe Ile Gly Ala Ser Tyr Val Leu Thr Leu Ala Met Gly  
100 105 110

Ala Phe Met Ile Ser Lys Gly Gln Val Thr Val Gly Asp Leu Val Thr  
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Phe Val Thr Tyr Leu Asp Met Leu Val Trp Pro Leu Met Ala Ile Gly  
130 135 140

Phe Leu Phe Asn Met Val Gln Arg Gly Ser Val Ser Tyr Asn Arg Ile  
145 150 155 160

Asn Ser Leu Leu Glu Gln Glu Ser Asp Ile Thr Asp Pro Leu Asn Pro  
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Ile Lys Pro Val Val Asn Gly Thr Leu Arg Tyr Asp Ile Asp Phe Phe  
180 185 190

Arg Tyr Asp Asn Glu Glu Thr Leu Ala Asp Ile His Phe Thr Leu Glu  
195 200 205

Lys Gly Gln Thr Leu Gly Leu Val Gly Gln Thr Gly Ser Gly Lys Thr  
210 215 220

Ser Leu Ile Lys Leu Leu Leu Arg Glu His Asp Val Thr Gln Gly Lys  
225 230 235 240

Ile Thr Leu Asn Lys His Asp Ile Arg Asp Tyr Arg Leu Ser Glu Leu  
245 250 255

Arg Gln Leu Ile Gly Tyr Val Pro Gln Asp Gln Phe Leu Phe Ala Thr  
260 265 270

Ser Ile Leu Glu Asn Val Arg Phe Gly Asn Pro Thr Leu Ser Ile Asn  
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Ala Val Lys Glu Ala Thr Lys Leu Ala His Val Tyr Asp Asp Ile Glu  
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Gln Met Pro Ala Gly Phe Glu Thr Leu Ile Gly Glu Lys Gly Val Ser  
305 310 315 320

Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala Met Ser Arg Ala Met Ile  
325 330 335

Leu Asp Pro Asp Ile Leu Ile Leu Asp Asp Ser Leu Ser Ala Val Asp  
340 345 350

Ala Lys Thr Glu His Ala Ile Val Glu Asn Leu Lys Thr Asn Arg Gln  
355 360 365

Gly Lys Ser Thr Ile Ile Ser Ala His Arg Leu Ser Ala Val Val His  
370 375 380

Ala Asp Leu Ile Leu Val Met Arg Asp Gly Arg Val Ile Glu Arg Gly  
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 Thr Thr Val Val Lys Asn Ile Ile Pro Leu Ile Ala Ser His Phe Ile  
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 Asp His Tyr Leu Thr Asn Val Asn Gln Thr Ala Val Leu Ile Leu Val  
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 Gly Tyr Tyr Ser Met Tyr Val Leu Gln Thr Leu Ile Gln Tyr Phe Gly  
 65 70 75 80  
 Asn Leu Phe Phe Ala Arg Val Ser Tyr Ser Ile Val Arg Asp Ile Arg  
 85 90 95  
 Arg Asp Ala Phe Ala Asn Met Glu Arg Leu Gly Met Ser Tyr Phe Asp  
 100 105 110  
 Arg Thr Pro Ala Gly Ser Ile Val Ser Arg Ile Thr Asn Asp Thr Glu  
 115 120 125  
 Ala Ile Ser Asp Met Phe Ser Gly Ile Leu Ser Ser Phe Ile Ser Ala  
 130 135 140

Ile Phe Ile Phe Thr Val Thr Leu Tyr Thr Met Leu Met Leu Asp Ile  
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 gctattaatc ctaatatgtat tatgattgtt gagggtctggc gaacattcca aggcgatcaa 2520  
 ggtaagccgg ttaaaccacg tgaccaagat tggatgaatg caaccgatac agttggcg 2580  
 ttttcagatg atattcgtaa tagttgaaa tctggtttc caaatgaagg tactccagct 2640  
 ttcatcacag gtggcccaaca atctttacaa ggtatttttta aaaaatataa agcacaacct 2700  
 gggattttgc aagcagattc gccaggagat gttgtgcagt atattgcgtc acatgataac 2760  
 cttaccttgc atgatgtgtat tgcaaaatca attaataaaag accctaaggat agctgaagaa 2820  
 gatattcata gacgtctgcg ttttagaaat gtaatgattt taacatctca agggacagca 2880  
 ttcatttcatt ctggtaaga gtatggcgt acgaagcgat tacttaaccc tgattacatg 2940  
 acaaaaatgtt cagatgacaa attgcctaat aaagcaacac ttattgaagc tggtaaagaa 3000  
 taccatatt ttattcatga ttcataatgat tcttcagatg ccattaaatca ttttgattgg 3060  
 gcagcagcca cagataataa caaacaccca atttcaacga aaacacaggc ctatacagca 3120  
 ggtttaatca cattaaggcg ttcaacagat gctttccggc aatttaggacaa agcagaaatt 3180  
 gatcggttgc ttagttgtat tacagaggtt ggtcaaggatg atattaaaga aaaagattt 3240  
 gttattgctt accaaacaat agattctaaa ggcgatattt acgcagtatt tggtaatgct 3300  
 gatagtaaag cttagaaacgt ttacttaggt gaaaaatata aacacccctttaaaaaggccaa 3360  
 gtaattgttgc atgctgatca agcggggatt aaaccaatct caactccctag aggtgttcat 3420  
 tttgaaaaag atagtttgc ttttagatca ttaacagaa ttgtgattaa agttggccaa 3480  
 gttgctccta gcccataagga ggaattgca gcatgatattt cccaaacaca atctttcaag 3540  
 ggtttaataa cggtagaaaa agtaataataga atagctaata agacctcaat aactccctgta 3600  
 gttttaataa agaccgattc atatctgaca aatgaagctt atttgc当地 aactggagat 3660  
 aagtcatcaa aaataactaag ttttagtagga ataagcatcc tagcaagttt acttgc当地 3720  
 cttagtctctt ctttaaagag gaatcgact taa 3753

<210> 10

<211> 1250

<212> PRT

<213> Streptococcus agalactiae

<400> 10

Met Lys Arg Lys Asp Leu Phe Gly Asp Lys Gln Thr Gln Tyr Thr Ile  
1 5 10 15

Arg Lys Leu Ser Val Gly Val Ala Ser Val Ala Thr Gly Val Cys Ile  
20 25 30

Phe Leu His Ser Pro Gln Val Phe Ala Glu Glu Val Ser Val Ser Pro  
35 40 45

Ala Thr Thr Ala Ile Ala Lys Ser Asn Ile Asn Gln Val Asp Asn Arg  
50 55 60

Gln Ser Thr Asn Leu Lys Asp Asp Ile Asn Ser Asn Ser Glu Thr Val  
65 70 75 80

Val Thr Pro Ser Asp Met Pro Asp Thr Lys Gln Leu Val Ser Asp Glu  
85 90 95

Thr Asp Thr Gln Lys Gly Val Thr Glu Pro Asp Lys Ala Thr Ser Leu  
100 105 110

Leu Glu Glu Asn Lys Gly Pro Val Ser Asp Lys Asn Thr Leu Asp Leu  
115 120 125

Lys Val Ala Pro Ser Thr Leu Gln Asn Thr Pro Asp Lys Thr Ser Gln  
130 135 140

Ala Ile Gly Ala Pro Ser Pro Thr Leu Lys Val Ala Asn Gln Ala Pro  
145 150 155 160

Gln Ile Glu Asn Gly Tyr Phe Arg Leu His Leu Lys Glu Leu Pro Gln  
165 170 175

Gly His Pro Val Glu Ser Thr Gly Leu Trp Ile Trp Gly Asp Val Asp  
180 185 190

Gln Pro Ser Ser Asn Trp Pro Asn Gly Ala Ile Pro Met Thr Asn Ala  
195 200 205

Lys Lys Asp Asp Tyr Gly Tyr Tyr Val Asp Phe Lys Leu Ser Glu Lys  
210 215 220

Gln Arg Lys Gln Ile Ser Phe Leu Ile Asn Asn Lys Ala Gly Thr Asn  
225 230 235 240

Leu Ser Gly Asp His His Ile Pro Leu Leu Arg Pro Glu Met Asn Gln  
245 250 255

Val Trp Ile Asp Glu Lys Tyr Gly Ile His Thr Tyr Gln Pro Leu Lys  
260 265 270

Glu Gly Tyr Val Arg Ile Asn Tyr Leu Ser Ser Ser Gly Asn Tyr Asp  
275 280 285

His Leu Ser Ala Trp Leu Phe Lys Asp Val Ala Thr Pro Ser Thr Thr

290	295	300
Trp Pro Asp Gly Ser Asn Phe Val Asn Gln Gly Leu Tyr Gly Arg Tyr		
305	310	315
Ile Asp Val Pro Leu Lys Thr Asn Ala Lys Glu Ile Gly Phe Leu Ile		
325	330	335
Leu Asp Glu Ser Lys Thr Gly Asp Ala Val Lys Val Gln Pro Asn Asp		
340	345	350
Tyr Val Phe Arg Asp Leu Ala Asn His Asn Gln Ile Phe Val Lys Asp		
355	360	365
Lys Asp Pro Lys Val Tyr Asn Asn Pro Tyr Tyr Ile Asp Gln Val Gln		
370	375	380
Leu Lys Asp Ala Gln Gln Thr Asp Leu Thr Ser Ile Gln Ala Ser Phe		
385	390	395
400		
Thr Thr Leu Asp Gly Val Asp Lys Thr Glu Ile Leu Lys Glu Leu Lys		
405	410	415
Val Thr Asp Lys Asn Gln Asn Ala Ile Gln Ile Ser Asp Ile Thr Leu		
420	425	430
Asp Thr Ser Lys Ser Leu Leu Ile Ile Lys Gly Asp Phe Asn Pro Lys		
435	440	445
Gln Gly His Phe Asn Ile Ser Tyr Asn Gly Asn Asn Val Thr Thr Arg		
450	455	460
Gln Ser Trp Glu Phe Lys Asp Gln Leu Tyr Ala Tyr Ser Gly Asn Leu		
465	470	475
480		
Gly Ala Val Leu Asn Gln Asp Gly Ser Lys Val Glu Ala Ser Leu Trp		
485	490	495
Ser Pro Ser Ala Asp Ser Val Thr Met Ile Ile Tyr Asp Lys Asn		
500	505	510
Gln Asn Arg Val Val Ala Thr Thr Pro Leu Val Lys Asn Asn Lys Gly		
515	520	525
Val Trp Gln Thr Ile Leu Asp Thr Lys Leu Gly Ile Lys Asn Tyr Thr		
530	535	540
Gly Tyr Tyr Tyr Leu Tyr Glu Ile Lys Arg Gly Lys Asp Lys Val Lys		
545	550	555
560		
Ile Leu Asp Pro Tyr Ala Lys Ser Leu Ala Glu Trp Asp Ser Asn Thr		
565	570	575
Val Asn Asp Asp Ile Lys Thr Ala Lys Ala Ala Phe Val Asn Pro Ser		
580	585	590
Gln Leu Gly Pro Lys Asn Leu Ser Phe Ala Lys Ile Ala Asn Phe Lys		

595                    600                    605

Gly Lys Gln Asp Ala Val Ile Tyr Glu Ala His Val Arg Asp Phe Thr  
610                    615                    620

Ser Asp Gln Ser Leu Asp Gly Lys Leu Lys Asn Gln Leu Gly Thr Phe  
625                    630                    635                    640

Ala Ala Phe Ser Glu Lys Leu Asp Tyr Leu Gln Lys Leu Gly Val Thr  
645                    650                    655

His Ile Gln Leu Leu Pro Val Leu Ser Tyr Phe Tyr Val Asn Glu Met  
660                    665                    670

Asp Lys Ser Arg Ser Thr Ala Tyr Thr Ser Ser Asp Asn Asn Tyr Asn  
675                    680                    685

Trp Gly Tyr Asp Pro Gln Ser Tyr Phe Ala Leu Ser Gly Met Tyr Ser  
690                    695                    700

Glu Lys Pro Lys Asp Pro Ser Ala Arg Ile Ala Glu Leu Lys Gln Leu  
705                    710                    715                    720

Ile His Asp Ile His Lys Arg Gly Met Gly Val Ile Leu Asp Val Val  
725                    730                    735

Tyr Asn His Thr Ala Lys Thr Tyr Leu Phe Glu Asp Ile Glu Pro Asn  
740                    745                    750

Tyr Tyr His Phe Met Asn Glu Asp Gly Ser Pro Arg Glu Ser Phe Gly  
755                    760                    765

Gly Gly Arg Leu Gly Thr Thr His Ala Met Ser Arg Arg Val Leu Val  
770                    775                    780

Asp Ser Ile Lys Tyr Leu Thr Ser Glu Phe Lys Val Asp Gly Phe Arg  
785                    790                    795                    800

Phe Asp Met Met Gly Asp His Asp Ala Ala Ala Ile Glu Leu Ala Tyr  
805                    810                    815

Lys Glu Ala Lys Ala Ile Asn Pro Asn Met Ile Met Ile Gly Glu Gly  
820                    825                    830

Trp Arg Thr Phe Gln Gly Asp Gln Gly Lys Pro Val Lys Pro Ala Asp  
835                    840                    845

Gln Asp Trp Met Lys Ser Thr Asp Thr Val Gly Val Phe Ser Asp Asp  
850                    855                    860

Ile Arg Asn Ser Leu Lys Ser Gly Phe Pro Asn Glu Gly Thr Pro Ala  
865                    870                    875                    880

Phe Ile Thr Gly Gly Pro Gln Ser Leu Gln Gly Ile Phe Lys Asn Ile  
885                    890                    895

Lys Ala Gln Pro Gly Asn Phe Glu Ala Asp Ser Pro Gly Asp Val Val

900 905 910  
Gln Tyr Ile Ala Ala His Asp Asn Leu Thr Leu His Asp Val Ile Ala  
915 920 925  
  
Lys Ser Ile Asn Lys Asp Pro Lys Val Ala Glu Glu Asp Ile His Arg  
930 935 940  
  
Arg Leu Arg Leu Gly Asn Val Met Ile Leu Thr Ser Gln Gly Thr Ala  
945 950 955 960  
  
Phe Ile His Ser Gly Gln Glu Tyr Gly Arg Thr Lys Arg Leu Leu Asn  
965 970 975  
  
Pro Asp Tyr Met Thr Lys Val Ser Asp Asp Lys Leu Pro Asn Lys Ala  
980 985 990  
  
Thr Leu Ile Glu Ala Val Lys Glu Tyr Pro Tyr Phe Ile His Asp Ser  
995 1000 1005  
  
Tyr Asp Ser Ser Asp Ala Ile Asn His Phe Asp Trp Ala Ala Ala Thr  
1010 1015 1020  
  
Asp Asn Asn Lys His Pro Ile Ser Thr Lys Thr Gln Ala Tyr Thr Ala  
1025 1030 1035 1040  
  
Gly Leu Ile Thr Leu Arg Arg Ser Thr Asp Ala Phe Arg Lys Leu Ser  
1045 1050 1055  
  
Lys Ala Glu Ile Asp Arg Glu Val Ser Leu Ile Thr Glu Val Gly Gln  
1060 1065 1070  
  
Gly Asp Ile Lys Glu Lys Asp Leu Val Ile Ala Tyr Gln Thr Ile Asp  
1075 1080 1085  
  
Ser Lys Gly Asp Ile Tyr Ala Val Phe Val Asn Ala Asp Ser Lys Ala  
1090 1095 1100  
  
Arg Asn Val Leu Leu Gly Glu Lys Tyr Lys His Leu Leu Lys Gly Gln  
1105 1110 1115 1120  
  
Val Ile Val Asp Ala Asp Gln Ala Gly Ile Lys Pro Ile Ser Thr Pro  
1125 1130 1135  
  
Arg Gly Val His Phe Glu Lys Asp Ser Leu Leu Ile Asp Pro Leu Thr  
1140 1145 1150  
  
Ala Ile Val Ile Lys Val Gly Lys Val Ala Pro Ser Pro Lys Glu Glu  
1155 1160 1165  
  
Leu Gln Ala Asp Tyr Pro Lys Thr Gln Ser Phe Lys Gly Ser Lys Thr  
1170 1175 1180  
  
Val Glu Lys Val Asn Arg Ile Ala Asn Lys Thr Ser Ile Thr Pro Val  
1185 1190 1195 1200  
  
Val Ser Asn Lys Thr Asp Ser Tyr Leu Thr Asn Glu Ala Asn Leu Pro

1205

1210

1215.

Lys Thr Gly Asp Lys Ser Ser Lys Ile Leu Ser Val Val Gly Ile Ser  
1220 1225 1230

Ile Leu Ala Ser Leu Leu Ala Leu Leu Gly Leu Ser Leu Lys Arg Asn  
1235 1240 1245

Arg Thr  
1250

<210> 11  
<211> 921  
<212> DNA  
<213> Streptococcus agalactiae

<400> 11  
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gataagttag caaaccccaa acaggctacg caaggcatgt cagttgtAAC cagctttac 120  
ccaatgtatg cgatgacaaa agaagtatct ggagacctaa atgatgtgag gatgatccaa 180  
tcagggtcag gcattcattc cttaaaccg tctgttaatg atgtggcagc tatttatgac 240  
gcggatttgc ttgtttacca atcacatacc tttagaagctt gggcaaggga tctagaccct 300  
aatttaaaaa aatcaaaggta taatgtttt gaagcgtcaa aacctctgac actagataga 360  
gtcaaaaggc tagaagatata ggaagtacaca caaggcattt accctgcac actttatgac 420  
ccacataacct ggacggatcc cggttagct ggtgaggaag ctgttaatata cgctaaagag 480  
cttaggacatt tggatcctaa acacaaagac agttacacta aaaaggctaa ggctttcaaa 540  
aaagaaggcag agcaactaac tgaagaatac actcaaaaat taaaaaggta ggcgtcaaaa 600  
acatttgta cgcaacacac ggcatttct tatctggcta aacgattcggtt cttgaaacaa 660  
cttggtatct cgggtatttc tccagagcaa gagcccttc ctcgccaattt gaaagaaattt 720  
caagactttg ttaaagaata caacgtcaag actatTTTc cagaagacaa cgtcaacccc 780  
aaaattgctc atgctattgc gaaatcaaca ggagctaaag taaagacattt aagtccactt 840  
gaagctgctc caagcggaaa caagacatat ttagaaaatc ttagagcaaa tttggaaagtg 900  
ctctatcaac agttgaagta a 921

<210> 12  
<211> 306  
<212> PRT  
<213> Streptococcus agalactiae

<400> 12  
Met Lys Lys Val Phe Phe Leu Met Ala Met Val Val Ser Leu Val Met  
1 5 10 15

Ile Ala Gly Cys Asp Lys Ser Ala Asn Pro Lys Gln Pro Thr Gln Gly  
20 25 30

Met Ser Val Val Thr Ser Phe Tyr Pro Met Tyr Ala Met Thr Lys Glu  
35 40 45

Val Ser Gly Asp Leu Asn Asp Val Arg Met Ile Gln Ser Gly Ala Gly  
50 55 60

Ile His Ser Phe Glu Pro Ser Val Asn Asp Val Ala Ala Ile Tyr Asp  
65 70 75 80

Ala Asp Leu Phe Val Tyr Gln Ser His Thr Leu Glu Ala Trp Ala Arg  
                   85                     90                 95  
  
 Asp Leu Asp Pro Asn Leu Lys Lys Ser Lys Val Asn Val Phe Glu Ala  
                   100                 105                 110  
  
 Ser Lys Pro Leu Thr Leu Asp Arg Val Lys Gly Leu Glu Asp Met Glu  
                   115                 120                 125  
  
 Val Thr Gln Gly Ile Asp Pro Ala Thr Leu Tyr Asp Pro His Thr Trp  
                   130                 135                 140  
  
 Thr Asp Pro Val Leu Ala Gly Glu Glu Ala Val Asn Ile Ala Lys Glu  
                   145                 150                 155                 160  
  
 Leu Gly His Leu Asp Pro Lys His Lys Asp Ser Tyr Thr Lys Lys Ala  
                   165                 170                 175  
  
 Lys Ala Phe Lys Lys Glu Ala Glu Gln Leu Thr Glu Glu Tyr Thr Gln  
                   180                 185                 190  
  
 Lys Phe Lys Lys Val Arg Ser Lys Thr Phe Val Thr Gln His Thr Ala  
                   195                 200                 205  
  
 Phe Ser Tyr Leu Ala Lys Arg Phe Gly Leu Lys Gln Leu Gly Ile Ser  
                   210                 215                 220  
  
 Gly Ile Ser Pro Glu Gln Glu Pro Ser Pro Arg Gln Leu Lys Glu Ile  
                   225                 230                 235                 240  
  
 Gln Asp Phe Val Lys Glu Tyr Asn Val Lys Thr Ile Phe Ala Glu Asp  
                   245                 250                 255  
  
 Asn Val Asn Pro Lys Ile Ala His Ala Ile Ala Lys Ser Thr Gly Ala  
                   260                 265                 270  
  
 Lys Val Lys Thr Leu Ser Pro Leu Glu Ala Ala Pro Ser Gly Asn Lys  
                   275                 280                 285  
  
 Thr Tyr Leu Glu Asn Leu Arg Ala Asn Leu Glu Val Leu Tyr Gln Gln  
                   290                 295                 300  
  
 Leu Lys  
                   305

<210> 13  
 <211> 657  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 13  
 ttgttcaata aaatagggtt tagaacttgg aaatcaggaa agctttggct ttatatggga 60  
 gtgcttagat caactattat tttaggatca agtcctgtat ctgctatgga tagtgttgg 120  
 aatcaaagtc aaggtaatgt tttagagcgt cgccaacgtg atgcggaaaa caaaagtcag 180

ggtaatgttt tagagcgtcg ccaacgtgat gcggaaaaaca agagccaagg caatgttta 240  
gagcgtcgta aacgcgtatgt tgagaataag agccaggca atgttttaga gcgtcgtaa 300  
cgtatgcgg aaaacaaaaag tcagggcaat gttctagagc gccgccaacg tcatgcggat 360  
aacaagagcc aagttaggtca acttataggg aaaaatccac tttttcaaa gccaactgta 420  
tctagagaaa ataatcactc tagtcaaggt gactctaaca aacagtctt ctctaaaaaa 480  
gtatctcagg ttactaatgt agctaataga ccgatgtttaa ctaataattc tagaacaatt 540  
tcagtgataa ataaaattacc taaaacaggt ggtgatcaaa atgtcatttt taaacttgta 600  
ggtttgggtt taattttgtt aacaagtcgc tgcggttga gacgcaatga aaattaa 657

<210> 14  
<211> 218  
<212> PRT  
<213> Streptococcus agalactiae

<400> 14  
Met Phe Asn Lys Ile Gly Phe Arg Thr Trp Lys Ser Gly Lys Leu Trp  
1 5 10 15  
  
Leu Tyr Met Gly Val Leu Gly Ser Thr Ile Ile Leu Gly Ser Ser Pro  
20 25 30  
  
Val Ser Ala Met Asp Ser Val Gly Asn Gln Ser Gln Gly Asn Val Leu  
35 40 45  
  
Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu  
50 55 60  
  
Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu  
65 70 75 80  
  
Glu Arg Arg Gln Arg Asp Val Glu Asn Lys Ser Gln Gly Asn Val Leu  
85 90 95  
  
Glu Arg Arg Gln Arg Asp Ala Glu Asn Lys Ser Gln Gly Asn Val Leu  
100 105 110  
  
Glu Arg Arg Gln Arg Asp Ala Asp Asn Lys Ser Gln Val Gly Gln Leu  
115 120 125  
  
Ile Gly Lys Asn Pro Leu Phe Ser Lys Pro Thr Val Ser Arg Glu Asn  
130 135 140  
  
Asn His Ser Ser Gln Gly Asp Ser Asn Lys Gln Ser Phe Ser Lys Lys  
145 150 155 160  
  
Val Ser Gln Val Thr Asn Val Ala Asn Arg Pro Met Leu Thr Asn Asn  
165 170 175  
  
Ser Arg Thr Ile Ser Val Ile Asn Lys Leu Pro Lys Thr Gly Gly Asp  
180 185 190  
  
Gln Asn Val Ile Phe Lys Leu Val Gly Phe Gly Leu Ile Leu Leu Thr  
195 200 205  
  
Ser Arg Cys Gly Leu Arg Arg Asn Glu Asn  
210 215

<210> 15  
<211> 1029  
<212> DNA  
<213> Streptococcus agalactiae

<400> 15  
atgacaaaaa aacttattat tgcttatata gcactatgca ctatcttaac cacttcctcaa 60  
gctgttttag ctaaagaaaa atcacaaact gttaccataa aaaacaacta ttccggcttat 120  
attaaaaaaaaaag aaaaaagaga caagccggat aataaaaagc aaatcagcga gacactaaa 180  
gttcctttaa aacccaaaaa agtagttgtt tttgatatgg gagctttgga tactatcaca 240  
gctttaggag ctgaaaaatc tgttattggat atcccgaagg ctaaaaatgc tctaagttta 300  
ttgc当地ata acgtcaaatac tgttataaa gctaagagat accaagacgt aggaagtctc 360  
ttcgaaccaa actttgaagc tattgctcgatgcacactg atgtggttt cctaggagca 420  
cgtatggctt ctgttgataa tattgaaaaa ttaaaggagg ctgcacctaa agcagcatta 480  
gtatatgctg gagtcgactc aaaaaaagta ttgacaaag gagttgctga gcgtgtcaca 540  
atgttaggaa aaatcttcga cccaaaataaa aaggcaaaaa cctttaataa agatatcgca 600  
caagctgttc ttaaattgca gaaaactatt gagaaaaaag gtaaacctac agctctattt 660  
gtaatggcaa acagcgggtga acttttaact caatcacctt ctggtcgtt tggttggatt 720  
ttctctgttag gtggatttaa agcagtcaat gaaaatgaaa aactaagttt acatggtaact 780  
cccgatatctt atgaatacat cgctgaaaaa aatcctaact atctctttgt ttagatcgt 840  
ggagcgacta ttggacaagg agcttcatca aaagaacttt ttaataacga tgttattaaa 900  
gcaactgatg ctgtaaaaa caaacgtt catgaggttag atgaaaaaga ttggtatatc 960  
aattcaggcg gaagccgagt aacactccgt atgattaaag atgtacagaa ctttgttgc 1020  
aatcgtaa 1029

<210> 16  
<211> 342  
<212> PRT  
<213> Streptococcus agalactiae

<400> 16  
Met Thr Lys Lys Leu Ile Ile Ala Ile Leu Ala Leu Cys Thr Ile Leu  
1 5 10 15  
Thr Thr Ser Gln Ala Val Leu Ala Lys Glu Lys Ser Gln Thr Val Thr  
20 25 30  
Ile Lys Asn Asn Tyr Ser Val Tyr Ile Lys Lys Glu Lys Arg Asp Lys  
35 40 45  
Pro Asp Asn Lys Lys Gln Ile Ser Glu Thr Leu Lys Val Pro Leu Lys  
50 55 60  
Pro Lys Lys Val Val Val Phe Asp Met Gly Ala Leu Asp Thr Ile Thr  
65 70 75 80  
Ala Leu Gly Ala Glu Lys Ser Val Ile Gly Ile Pro Lys Ala Lys Asn  
85 90 95  
Ala Leu Ser Leu Leu Pro Asn Asn Val Lys Ser Val Tyr Lys Ala Lys  
100 105 110  
Arg Tyr Gln Asp Val Gly Ser Leu Phe Glu Pro Asn Phe Glu Ala Ile

115	120	125
Ala Arg Met Gln Pro Asp Val Val Phe Leu Gly Ala Arg Met Ala Ser		
130	135	140
Val Asp Asn Ile Glu Lys Leu Lys Glu Ala Ala Pro Lys Ala Ala Leu		
145	150	155
160		
Val Tyr Ala Gly Val Asp Ser Lys Lys Val Phe Asp Lys Gly Val Ala		
165	170	175
Glu Arg Val Thr Met Leu Gly Lys Ile Phe Asp Gln Asn Lys Lys Ala		
180	185	190
Lys Thr Phe Asn Lys Asp Ile Ala Gln Ala Val Leu Lys Leu Gln Lys		
195	200	205
Thr Ile Glu Lys Lys Gly Lys Pro Thr Ala Leu Phe Val Met Ala Asn		
210	215	220
Ser Gly Glu Leu Leu Thr Gln Ser Pro Ser Gly Arg Phe Gly Trp Ile		
225	230	235
240		
Phe Ser Val Gly Gly Phe Lys Ala Val Asn Glu Asn Glu Lys Leu Ser		
245	250	255
Ser His Gly Thr Pro Val Ser Tyr Glu Tyr Ile Ala Glu Lys Asn Pro		
260	265	270
Asn Tyr Leu Phe Val Leu Asp Arg Gly Ala Thr Ile Gly Gln Gly Ala		
275	280	285
Ser Ser Lys Glu Leu Phe Asn Asn Asp Val Ile Lys Ala Thr Asp Ala		
290	295	300
Val Lys Asn Lys Arg Val His Glu Val Asp Gly Lys Asp Trp Tyr Ile		
305	310	315
320		
Asn Ser Gly Gly Ser Arg Val Thr Leu Arg Met Ile Lys Asp Val Gln		
325	330	335
Asn Phe Val Asp Asn Arg		
340		

<210> 17  
 <211> 2469  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 17  
 gtgaagaaaa catatggta tatcggtca gttgctgcta ttttacttagc tactcatatt 60  
 ggaaggtaacc agcttggtaa gcatcatatg ggtctagcaa caaaggacaa tcagattgcc 120  
 tatattgatg atagcaaagg taaggtaaaa gcccctaaaa caaacaaaac gatggatcaa 180  
 atcagtgcgt aagaaggcat ctctgctgaa cagatcgtag tcaaaaattac tgacccaaggt 240  
 tatgttacct cacacggtga ccattatcat ttttacaatg ggaaagttcc ttatgtatgcg 300

attatttagt aagagttgtt gatgacggat cctaattacc atttaaaca atcagacgtt 360  
 atcaatgaaa tcttagacgg ttacgttatt aaagtcaatg gcaactatta tgttcaccc 420  
 aaggccaggta gtaagcgcaa aaacattcga accaaacaac aaattgctga gcaagtagcc 480  
 aaagaacta aagaagctaa agaaaaaggt ttagctcaag tggcccatct cagtaaagaa 540  
 gaagttgcgg cagtcaatga agcaaaaaga caaggacgt atactacaga cgtggctat 600  
 attttagtc cgacagatat cattgtatgat ttaggagatg cttatggat acctcatgg 660  
 aatcaactatc attatattcc taaaaaaagat ttgtctccaa gtgagctagc tgctgcacaa 720  
 gcctactgga gtcaaaaaca aggtcgaggt gctagaccgt ctgattaccg cccgacacca 780  
 gcccaggcgt gtaggaaagc cccaaattcct gatgtgacgc ctaaccctgg acaaggcat 840  
 cagccagata acggtggtt tcatccagcg cctccttaggc caaatgtatc gtcacaaaac 900  
 aaacacccaa gagatgagtt taaaggaaaa acctttaagg aactttttaga tcatctacac 960  
 cgtcttgatt taaaataccg tcatgtggaa gaagatgggt tgatttttaga accgactcaa 1020  
 gtgatcaaat caaacgctt tggtatgtg gtgcctcatg gagatcatta tcataattatc 1080  
 ccaagaagtc agttatcacc tcttgaatg gaattagcag atcgataactt agccggccaa 1140  
 actgatgaca acgactcagg ttcagatcac tcaaaaaccat cagataaaga agtgacacat 1200  
 acctttcttgcgt catcgcat caaagcttac ggaaaaggct tagatggtaa accatatgtat 1260  
 acgagtgtat cttatgttt tagtaaagaa tccatttcatt cagtgatcata atcaggagtt 1320  
 acagctaaac acggagatca ttccactat ataggattt gagaacttga acaatatgag 1380  
 ttggatgagg tcgctaactg ggtgaaagca aaaggtcaag ctgatgagct tggtgctgct 1440  
 ttggatcagg aacaaggcaa agaaaaacca ctcttgaca ctaaaaaaagt gagtcgcaaa 1500  
 gtaacaaaag atggtaaagt gggctatatt atgccaaggat atggcaagga ctatttctat 1560  
 gtcgttattc aacttgatt gactcagatt gccttgccg aacaagaact aatgctaaa 1620  
 gataagaagc attaccgtt tgacattgtt gatacaggca ttgagccacg acttgctgta 1680  
 gatgtgtcaa gtctggcat gcatgtggt aatgctactt acgataactgg aagttcggtt 1740  
 gttatccac atattgatca tatccatgtc gttccgtatt catggttgac ggcataatcag 1800  
 attgcaacaa tcaagtatgtt gatgcaacac cccgaagttc gtccggatgt atggcttaag 1860  
 ccaggccatg aagagtccagg ttccgttattt ccaaatgtt cgcctttaaaacgtgct 1920  
 ggtatgccaa actggccaaat tatccatttct gctgaagaag ttcaaaaago cctagcagaa 1980  
 ggtcgcccc cagcaccaga cggctatatt ttccgttccac gagatgtttt ggcaaaaagaa 2040  
 acttttgtat ggaaagatgg ttccgtttagc atcccaagag cagatggcag ttccattgaga 2100  
 accattaata aatccgatct atcccaagct gaggccaaac aagctcaaga gttattggca 2160  
 aagaaaaatg ctggtgatgc tactgatacg gataaacctg aagaaaaagca acaggcagat 2220  
 aagagcaatg aaaaccaaca gccaagtggaa gccagtaaag aagaaaaaga atcagatgac 2280  
 tttatagaca gtttaccaga ctatggtcta gatagagcaa ccctagaaga tcataatcaat 2340  
 caatttagcac aaaaagctaa tatcgatcct aagtatctca ttttccaacc agaaggtgtc 2400  
 caattttata ataaaaatgg tgaattggta acttatgata tcaagacact tcaacaaata 2460  
 aacccttaa 2469

<210> 18  
 <211> 822  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 18  
 Met Lys Lys Thr Tyr Gly Tyr Ile Gly Ser Val Ala Ala Ile Leu Leu  
 1 5 10 15

Ala Thr His Ile Gly Ser Tyr Gln Leu Gly Lys His His Met Gly Leu  
 20 25 30

Ala Thr Lys Asp Asn Gln Ile Ala Tyr Ile Asp Asp Ser Lys Gly Lys  
 35 40 45

Val Lys Ala Pro Lys Thr Asn Lys Thr Met Asp Gln Ile Ser Ala Glu  
 50 55 60

Glu Gly Ile Ser Ala Glu Gln Ile Val Val Lys Ile Thr Asp Gln Gly  
 65 70 75 80

Tyr Val Thr Ser His Gly Asp His Tyr His Phe Tyr Asn Gly Lys Val  
 85 90 95

Pro Tyr Asp Ala Ile Ile Ser Glu Glu Leu Leu Met Thr Asp Pro Asn  
 100 105 110

Tyr His Phe Lys Gln Ser Asp Val Ile Asn Glu Ile Leu Asp Gly Tyr  
 115 120 125

Val Ile Lys Val Asn Gly Asn Tyr Tyr Val Tyr Leu Lys Pro Gly Ser  
 130 135 140

Lys Arg Lys Asn Ile Arg Thr Lys Gln Gln Ile Ala Glu Gln Val Ala  
 145 150 155 160

Lys Gly Thr Lys Glu Ala Lys Glu Lys Gly Leu Ala Gln Val Ala His  
 165 170 175

Leu Ser Lys Glu Glu Val Ala Ala Val Asn Glu Ala Lys Arg Gln Gly  
 180 185 190

Arg Tyr Thr Thr Asp Asp Gly Tyr Ile Phe Ser Pro Thr Asp Ile Ile  
 195 200 205

Asp Asp Leu Gly Asp Ala Tyr Leu Val Pro His Gly Asn His Tyr His  
 210 215 220

Tyr Ile Pro Lys Lys Asp Leu Ser Pro Ser Glu Leu Ala Ala Ala Gln  
 225 230 235 240

Ala Tyr Trp Ser Gln Lys Gln Gly Arg Gly Ala Arg Pro Ser Asp Tyr  
 245 250 255

Arg Pro Thr Pro Ala Pro Gly Arg Arg Lys Ala Pro Ile Pro Asp Val  
 260 265 270

Thr Pro Asn Pro Gly Gln Gly His Gln Pro Asp Asn Gly Gly Tyr His  
 275 280 285

Pro Ala Pro Pro Arg Pro Asn Asp Ala Ser Gln Asn Lys His Gln Arg  
 290 295 300

Asp Glu Phe Lys Gly Lys Thr Phe Lys Glu Leu Leu Asp His Leu His  
 305 310 315 320

Arg Leu Asp Leu Lys Tyr Arg His Val Glu Asp Gly Leu Ile Phe  
 325 330 335

Glu Pro Thr Gln Val Ile Lys Ser Asn Ala Phe Gly Tyr Val Val Pro  
 340 345 350

His Gly Asp His Tyr His Ile Ile Pro Arg Ser Gln Leu Ser Pro Leu  
 355 360 365

Glu Met Glu Leu Ala Asp Arg Tyr Leu Ala Gly Gln Thr Asp Asp Asn  
370 375 380

Asp Ser Gly Ser Asp His Ser Lys Pro Ser Asp Lys Glu Val Thr His  
385 390 395 400

Thr Phe Leu Gly His Arg Ile Lys Ala Tyr Gly Lys Gly Leu Asp Gly  
405 410 415

Lys Pro Tyr Asp Thr Ser Asp Ala Tyr Val Phe Ser Lys Glu Ser Ile  
420 425 430

His Ser Val Asp Lys Ser Gly Val Thr Ala Lys His Gly Asp His Phe  
435 440 445

His Tyr Ile Gly Phe Gly Glu Leu Glu Gln Tyr Glu Leu Asp Glu Val  
450 455 460

Ala Asn Trp Val Lys Ala Lys Gly Gln Ala Asp Glu Leu Val Ala Ala  
465 470 475 480

Leu Asp Gln Glu Gln Gly Lys Glu Lys Pro Leu Phe Asp Thr Lys Lys  
485 490 495

Val Ser Arg Lys Val Thr Lys Asp Gly Lys Val Gly Tyr Ile Met Pro  
500 505 510

Lys Asp Gly Lys Asp Tyr Phe Tyr Ala Arg Tyr Gln Leu Asp Leu Thr  
515 520 525

Gln Ile Ala Phe Ala Glu Gln Glu Leu Met Leu Lys Asp Lys Lys His  
530 535 540

Tyr Arg Tyr Asp Ile Val Asp Thr Gly Ile Glu Pro Arg Leu Ala Val  
545 550 555 560

Asp Val Ser Ser Leu Pro Met His Ala Gly Asn Ala Thr Tyr Asp Thr  
565 570 575

Gly Ser Ser Phe Val Ile Pro His Ile Asp His Ile His Val Val Pro  
580 585 590

Tyr Ser Trp Leu Thr Arg Asn Gln Ile Ala Thr Ile Lys Tyr Val Met  
595 600 605

Gln His Pro Glu Val Arg Pro Asp Val Trp Ser Lys Pro Gly His Glu  
610 615 620

Glu Ser Gly Ser Val Ile Pro Asn Val Thr Pro Leu Asp Lys Arg Ala  
625 630 635 640

Gly Met Pro Asn Trp Gln Ile Ile His Ser Ala Glu Glu Val Gln Lys  
645 650 655

Ala Leu Ala Glu Gly Arg Phe Ala Ala Pro Asp Gly Tyr Ile Phe Asp  
660 665 670

Pro Arg Asp Val Leu Ala Lys Glu Thr Phe Val Trp Lys Asp Gly Ser  
 675 680 685  
 Phe Ser Ile Pro Arg Ala Asp Gly Ser Ser Leu Arg Thr Ile Asn Lys  
 690 695 700 720  
 Ser Asp Leu Ser Gln Ala Glu Trp Gln Gln Ala Gln Glu Leu Leu Ala  
 705 710 715 720  
 Lys Lys Asn Ala Gly Asp Ala Thr Asp Thr Asp Lys Pro Glu Glu Lys  
 725 730 735  
 Gln Gln Ala Asp Lys Ser Asn Glu Asn Gln Gln Pro Ser Glu Ala Ser  
 740 745 750  
 Lys Glu Glu Lys Glu Ser Asp Asp Phe Ile Asp Ser Leu Pro Asp Tyr  
 755 760 765  
 Gly Leu Asp Arg Ala Thr Leu Glu Asp His Ile Asn Gln Leu Ala Gln  
 770 775 780  
 Lys Ala Asn Ile Asp Pro Lys Tyr Leu Ile Phe Gln Pro Glu Gly Val  
 785 790 795 800  
 Gln Phe Tyr Asn Lys Asn Gly Glu Leu Val Thr Tyr Asp Ile Lys Thr  
 805 810 815  
 Leu Gln Gln Ile Asn Pro  
 820

<210> 19  
 <211> 939  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 19  
 atgatacgcc agttttaag agaacacttg atttggata ttttatataat catgatgttt 60  
 gtcctatattt ttatttagtt ctatctataat catttaccaa tgccctattt gtttaattcc 120  
 ttaggtttaa atgttattgt tttacttagga attagtattt ggcaatacag tcgttacagg 180  
 aaaaaaatgt tacatctcaa atatttat aagtgcagg acccctcttt cgaacttcaa 240  
 ccgagtgtt acgcttattt taatattt acacaattag aagcttagaga agcgaaaaaa 300  
 gtttctgaaa caattgaaca aaccaatcat gttgcactta tgataaaagat gtggtcgcac 360  
 caaatgaaag ttccattggc agctattca ttaatggccc agacaaatca tctcgatcct 420  
 aaggaagttg aacaacaattt attgaaatttgc caacattatc ttgaaacgtt gtttagcattt 480  
 ttgaaatttgc gacaatatcg tgacgatattt cgtttgaag ctgttagcct tagagaagta 540  
 gtagtagaaa ttataaaatc gtataagggtt atttgtctat caaaaagctt atctatcata 600  
 attgaaggcg ataatatctg gaaaacagac aaaaagtggtaaactttgc tctttcacag 660  
 gtgctagata atgccataaa atattctaat cctgagtcggaa agataataat aagcatagga 720  
 gaagagagta tttagaataca agactacggat atcggcatac tcgaagagaggtatccctaga 780  
 cttttgaag atggcttac gggttacaac ggtcatgagc accaaaaggc aacagggcatg 840  
 gggttatata tgacaaaaaaga agtcttatct agtctgaatttgc tttccatttc ggtggatagc 900  
 aaaattaattt atgggactgc tgttctata cataaataa 939

<210> 20

<211> 312

<212> PRT

<213> Streptococcus agalactiae

<400> 20

Met Ile Arg Gln Phe Leu Arg Glu His Leu Ile Trp Tyr Ile Leu Tyr  
1 5 10 15

Ile Met Met Phe Val Leu Phe Phe Ile Ser Phe Tyr Leu Tyr His Leu  
20 25 30

Pro Met Pro Tyr Leu Phe Asn Ser Leu Gly Leu Asn Val Ile Val Leu  
35 40 45

Leu Gly Ile Ser Ile Trp Gln Tyr Ser Arg Tyr Arg Lys Lys Met Leu  
50 55 60

His Leu Lys Tyr Phe Asn Ser Ser Gln Asp Pro Ser Phe Glu Leu Gln  
65 70 75 80

Pro Ser Asp Tyr Ala Tyr Phe Asn Ile Ile Thr Gln Leu Glu Ala Arg  
85 90 95

Glu Ala Gln Lys Val Ser Glu Thr Ile Glu Gln Thr Asn His Val Ala  
100 105 110

Leu Met Ile Lys Met Trp Ser His Gln Met Lys Val Pro Leu Ala Ala  
115 120 125

Ile Ser Leu Met Ala Gln Thr Asn His Leu Asp Pro Lys Glu Val Glu  
130 135 140

Gln Gln Leu Leu Lys Leu Gln His Tyr Leu Glu Thr Leu Leu Ala Phe  
145 150 155 160

Leu Lys Phe Arg Gln Tyr Arg Asp Asp Phe Arg Phe Glu Ala Val Ser  
165 170 175

Leu Arg Glu Val Val Val Glu Ile Ile Lys Ser Tyr Lys Val Ile Cys  
180 185 190

Leu Ser Lys Ser Leu Ser Ile Ile Ile Glu Gly Asp Asn Ile Trp Lys  
195 200 205

Thr Asp Lys Lys Trp Leu Thr Phe Ala Leu Ser Gln Val Leu Asp Asn  
210 215 220

Ala Ile Lys Tyr Ser Asn Pro Glu Ser Lys Ile Ile Ile Ser Ile Gly  
225 230 235 240

Glu Glu Ser Ile Arg Ile Gln Asp Tyr Gly Ile Gly Ile Leu Glu Glu  
245 250 255

Asp Ile Pro Arg Leu Phe Glu Asp Gly Phe Thr Gly Tyr Asn Gly His  
260 265 270

Glu His Gln Lys Ala Thr Gly Met Gly Leu Tyr Met Thr Lys Glu Val

275

280

285

Leu Ser Ser Leu Asn Leu Ser Ile Ser Val Asp Ser Lys Ile Asn Tyr  
290 295 300

Gly Thr Ala Val Ser Ile His Lys  
305 310

<210> 21  
<211> 942  
<212> DNA  
<213> Streptococcus agalactiae

<400> 21  
atgacttatac aaaaaacagt tgtttggct ggtgattatt cctacattag acaaattgaa 60  
accacattaa aatctctctg tgtctatcat gagaatctct caatttttat ttttaatcaa 120  
gatattcctc aagaatggtt ttttagctatg aaagataggg ttggacaaac tggaaatcaa 180  
attcaggatg taaagctctt ccatgatcac ttatccccaa aatgggaaaa taaaaagctt 240  
aatcatatta attatatgac ctatgcgt tatccatac ctcagtcatac ctcagctgtat 300  
acagtttat atcttgactc tgacttagtt gttactacta atttagataa cctctttcaa 360  
atttcactag acaatgcata ttttagctga gttccagctc ttttggct tggatatggg 420  
tttaatgctg gagtaatggt aatttaacaac caacgttggc gacaagaaaa tatgactatt 480  
aaattaattg aaaaaaatca aaaggaaatt gagaatgcca acgaaggggg tcaaacaatt 540  
cttaatcgca tgttgaaaaa tcaggttaatt tatttagatg atacctacaa ttttcaaatt 600  
ggttttgata tgggagctgc tategatggg cataaaattta ttttgacat cccaaattacc 660  
ccactcccaa aaatttattca ctacatttcg ggaatcaaac cttggcaaaac attatcaaatt 720  
atgagactcc gtgaggtatg gtggactat aatttacttg aatggtcaag tatcatatct 780  
agtaaaaaag tatttggttt agaccaccca attaaaacac aaaattatcg tctcaatttc 840  
cttattgcta caacttctga ttgtatacca tctatctcag aatttagtcac tgcccttcca 900  
gattgtctat ttcacattgc atgcaccaac agttatgtct ga 942

<210> 22  
<211> 313  
<212> PRT  
<213> Streptococcus agalactiae

<400> 22  
Met Thr Tyr Gln Lys Thr Val Val Leu Ala Gly Asp Tyr Ser Tyr Ile  
1 5 10 15

Arg Gln Ile Glu Thr Thr Leu Lys Ser Leu Cys Val Tyr His Glu Asn  
20 25 30

Leu Ser Ile Phe Ile Phe Asn Gln Asp Ile Pro Gln Glu Trp Phe Leu  
35 40 45

Ala Met Lys Asp Arg Val Gly Gln Thr Gly Asn Gln Ile Gln Asp Val  
50 55 60

Lys Leu Phe His Asp His Leu Ser Pro Lys Trp Glu Asn Lys Lys Leu  
65 70 75 80

Asn His Ile Asn Tyr Met Thr Tyr Ala Arg Tyr Phe Ile Pro Gln Tyr  
85 90 95

Ile Ser Ala Asp Thr Val Leu Tyr Leu Asp Ser Asp Leu Val Val Thr  
 100 105 110  
 Thr Asn Leu Asp Asn Leu Phe Gln Ile Ser Leu Asp Asn Ala Tyr Leu  
 115 120 125  
 Ala Ala Val Pro Ala Leu Phe Gly Leu Gly Tyr Gly Phe Asn Ala Gly  
 130 135 140  
 Val Met Val Ile Asn Asn Gln Arg Trp Arg Gln Glu Asn Met Thr Ile  
 145 150 155 160  
 Lys Leu Ile Glu Lys Asn Gln Lys Glu Ile Glu Asn Ala Asn Glu Gly  
 165 170 175  
 Asp Gln Thr Ile Leu Asn Arg Met Phe Glu Asn Gln Val Ile Tyr Leu  
 180 185 190  
 Asp Asp Thr Tyr Asn Phe Gln Ile Gly Phe Asp Met Gly Ala Ala Ile  
 195 200 205  
 Asp Gly His Lys Phe Ile Phe Asp Ile Pro Ile Thr Pro Leu Pro Lys  
 210 215 220  
 Ile Ile His Tyr Ile Ser Gly Ile Lys Pro Trp Gln Thr Leu Ser Asn  
 225 230 235 240  
 Met Arg Leu Arg Glu Val Trp Trp His Tyr Asn Leu Leu Glu Trp Ser  
 245 250 255  
 Ser Ile Ile Ser Ser Lys Lys Val Phe Gly Leu Asp His Pro Ile Lys  
 260 265 270  
 Thr Gln Asn Tyr Arg Leu Asn Phe Leu Ile Ala Thr Thr Ser Asp Cys  
 275 280 285  
 Ile Pro Ser Ile Ser Glu Leu Val Thr Ala Leu Pro Asp Cys Leu Phe  
 290 295 300  
 His Ile Ala Cys Thr Asn Ser Tyr Val  
 305 310

<210> 23  
 <211> 1146  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 23  
 gtgaagaaaa catattgtta tatcggtca gttgctgcta ttttacttagc tactcatatt 60  
 ggaagttacc agcttggtaa gcacatcatatg ggtctagcaa caaaggacaa tcagattgcc 120  
 tatatttgatg atagcaaagg taaggtaaaa gcccctaaaa caaacaaaac gatggatcaa 180  
 atcagtgcgt aagaaggcat ctctgctgaa cagatcgtag tcaaaaattac tgacccaaggt 240  
 tatgttacct cacacggta ccattatcat ttttacaatg ggaaaggcc ttatgtgcg 300  
 attatttagt aagagtttt gatgacggat cctaattacc attttaaaca atcagacgtt 360

atcaatgaaa tcttagacgg ttacgttatt aaagtcaatg gcaactatta tgtttacctc 420  
 aagccaggt aatacgcaaa acacattcg accaaacaac aaattgctga gcaaggtagcc 480  
 aaaggaacta aagaagctaa agaaaaagggt ttagctcaag tggcccatct cagtaaagaa 540  
 gaagttgcgg cagtcatatg agcaaaaaga caaggacgt atactacaga cgatggctat 600  
 atttttagtc cgacagatc catttatgtat ttaggagatg cttatttagt acctcatgg 660  
 aatcaatc attatattcc taaaaaagat ttgtctccaa gtgagctgc tgctgcacaa 720  
 gcctactgga gtcaaaaaca aggtcgaggt gctagaccgt ctgattaccg cccgacacca 780  
 gccccaggtc gtaggaaagc cccacttct gatgtgacgc ctaaccctgg acaaggcat 840  
 cagccagata acgggttgta tcattccagcg cctccttaggc caaatgatgc gtcacaaaac 900  
 aaacacccaa gagatgagtt taaaggaaaa acctttaagg aacttttaga tcaactacac 960  
 cgtcttgatt taaaataccg tcattgtggaa gaagatgggt tgattttga accgactcaa 1020  
 gtgatcaaat caaacgctt tggtatgtg gtgcctcatg gagatcatta tcataattatc 1080  
 ccaagaagtc agttatcacc tcttggaaatg gaattagcag atcgatactt aaccggcca 1140  
 1146  
 aactga

<210> 24

<211> 381

<212> PRT

<213> Streptococcus agalactiae

<400> 24

Met Lys Lys Thr Tyr Cys Tyr Ile Gly Ser Val Ala Ala Ile Leu Leu  
 1 5 10 15

Ala Thr His Ile Gly Ser Tyr Gln Leu Gly Lys His His Met Gly Leu  
 20 25 30

Ala Thr Lys Asp Asn Gln Ile Ala Tyr Ile Asp Asp Ser Lys Gly Lys  
 35 40 45

Val Lys Ala Pro Lys Thr Asn Lys Thr Met Asp Gln Ile Ser Ala Glu  
 50 55 60

Glu Gly Ile Ser Ala Glu Gln Ile Val Val Lys Ile Thr Asp Gln Gly  
 65 70 75 80

Tyr Val Thr Ser His Gly Asp His Tyr His Phe Tyr Asn Gly Lys Val  
 85 90 95

Pro Tyr Asp Ala Ile Ile Ser Glu Glu Leu Leu Met Thr Asp Pro Asn  
 100 105 110

Tyr His Phe Lys Gln Ser Asp Val Ile Asn Glu Ile Leu Asp Gly Tyr  
 115 120 125

Val Ile Lys Val Asn Gly Asn Tyr Tyr Val Tyr Leu Lys Pro Gly Ser  
 130 135 140

Lys Arg Lys Asn Ile Arg Thr Lys Gln Gln Ile Ala Glu Gln Val Ala  
 145 150 155 160

Lys Gly Thr Lys Glu Ala Lys Glu Lys Gly Leu Ala Gln Val Ala His  
 165 170 175

Leu Ser Lys Glu Glu Val Ala Ala Val Asn Glu Ala Lys Arg Gln Gly  
 180 185 190

Arg Tyr Thr Thr Asp Asp Gly Tyr Ile Phe Ser Pro Thr Asp Ile Ile  
195 200 205

Asp Asp Leu Gly Asp Ala Tyr Leu Val Pro His Gly Asn His Tyr His  
210 215 220

Tyr Ile Pro Lys Lys Asp Leu Ser Pro Ser Glu Leu Ala Ala Ala Gln  
225 230 235 240

Ala Tyr Trp Ser Gln Lys Gln Gly Arg Gly Ala Arg Pro Ser Asp Tyr  
245 250 255

Arg Pro Thr Pro Ala Pro Gly Arg Arg Lys Ala Pro Leu Pro Asp Val  
260 265 270

Thr Pro Asn Pro Gly Gln Gly His Gln Pro Asp Asn Gly Gly Tyr His  
275 280 285

Pro Ala Pro Pro Arg Pro Asn Asp Ala Ser Gln Asn Lys His Gln Arg  
290 295 300

Asp Glu Phe Lys Gly Lys Thr Phe Lys Glu Leu Leu Asp Gln Leu His  
305 310 315 320

Arg Leu Asp Leu Lys Tyr Arg His Val Glu Glu Asp Gly Leu Ile Phe  
325 330 335

Glu Pro Thr Gln Val Ile Lys Ser Asn Ala Phe Gly Tyr Val Val Pro  
340 345 350

His Gly Asp His Tyr His Ile Ile Pro Arg Ser Gln Leu Ser Pro Leu  
355 360 365

Glu Met Glu Leu Ala Asp Arg Tyr Leu Thr Arg Pro Asn  
370 375 380

<210> 25

<211> 660

<212> DNA

<213> Streptococcus agalactiae

<400> 25

atggtaaatg atatattaga aagaatgtat aaagagaata ttccaaaatc ttaccttaca 60  
tccgtcccat tagttatttc tcaaaaagga agaacaaacct attcgtagt tagactgg 120  
ggtaacaaa tagatggagt gaaattcaca cagatataatg aggactatat gaaattactc 180  
agtcaaggta aggtatatcgc agaggatataat caaaaatattt ctaaagaaga gttggcaa 240  
ctaggcatta atatattatca atccaatgtat atagaaagga ctgaggaaag aacttttgat 300  
gaaattatca gttgggttca accccttat gcaacaagac caattcaaga aaggcacact 360  
attcaattatc agccaacaag attttcaacta gaggataaga aaagaatttg agaagctgca 420  
gctcaaggac taagcgaaat cgaccattt gattttagttg accttatatga tattaattt 480  
gacaatacaa gcgtcaatcg ccattttgtg gggttatgaa ctaataaacac ccaagtaaca 540  
tactatttcc aagaacaatt aaataaggag ttgctgtcaa tggctcacgc tttagataac 600  
gtacaacagg ccttattaa attattaatg gaagaggaga tacaaaatt tgctctttaa 660

<210> 26  
<211> 219  
<212> PRT  
<213> Streptococcus agalactiae

<400> 26  
Met Val Asn Asp Ile Leu Glu Arg Met Tyr Lys Glu Asn Ile Pro Lys  
1 5 10 15  
  
Ser Tyr Leu Thr Ser Val Pro Leu Val Ile Ser Gln Lys Gly Arg Thr  
20 25 30  
  
Thr Tyr Ser Phe Ser Met Thr Gly Gly Gln Gln Ile Asp Gly Val Lys  
35 40 45  
  
Phe Thr Gln Ile Tyr Glu Asp Tyr Met Lys Leu Leu Ser Gln Gly Lys  
50 55 60  
  
Asp Ile Ala Glu Leu Tyr Gln Lys Tyr Ser Lys Glu Glu Leu Ala Asn  
65 70 75 80  
  
Leu Gly Ile Asn Ile Tyr Gln Ser Asn Asp Ile Glu Arg Thr Glu Glu  
85 90 95  
  
Arg Thr Phe Asp Glu Ile Ile Ser Trp Val Ser Asn Pro Tyr Ala Thr  
100 105 110  
  
Arg Pro Ile Gln Glu Arg His Thr Ile Gln Leu Glu Pro Thr Arg Phe  
115 120 125  
  
Ser Leu Glu Asp Lys Lys Arg Ile Glu Glu Ala Ala Gln Gly Leu  
130 135 140  
  
Ser Glu Ile Asp Leu Ile Asp Leu Val Asp Leu Tyr Asp Ile Asn Leu  
145 150 155 160  
  
Asp Asn Thr Ser Val Asn Arg His Ile Val Gly Leu Leu Thr Asn Asn  
165 170 175  
  
Thr Gln Val Thr Tyr Tyr Phe Gln Glu Gln Leu Asn Lys Glu Leu Leu  
180 185 190  
  
Ser Met Ala His Ala Leu Asp Asn Val Gln Gln Ala Phe Ile Lys Leu  
195 200 205  
  
Leu Ser Glu Glu Glu Ile Arg Lys Phe Ala Leu  
210 215

<210> 27  
<211> 653  
<212> DNA  
<213> Streptococcus agalactiae

<400> 27

atgaataaaa gaagaaaatt atcaaaattg aatgtaaaaa aacaacattt agcttatgga 60  
gctatcatt tagtagccct ttttcatgt attttggctg taacggcat cttaaaagt 120  
tcacaaggta ctactgaatc ttgtcaaaa gcagataaaag ttcgcgtac caaaaatca 180  
aaaatgacta aggcgacatc taaatcaaaa gtagaagatg taaaacaggc tccaaaacct 240  
tctcaggcat ctaatgaagc cccaaaatca agttctaat ctacagaagc taattctcag 300  
caacaaggta ctgcgagtg agaggcggct gtagaacaag cagttgtaac agaaaatacc 360  
cctgctacca gtcaggcaca acaaacttat gctgttactg agacaactta caaacctgct 420  
caacaccaga caagtggcca agtattgagc aatggaaata ctgcagggc ggtcgatct 480  
gctgctgcag cacaaatggc tgctgcaaca ggagtcctc agtctacttg ggaacatatt 540  
attgcccgtg aatcaaattgg taatcctaatt gttgctaatt cctcagggc ttcaggactt 600  
ttccaaacga tgccaggtt gggtaaca gctacagttc aggatcaagt taa 653

<210> 28  
<211> 234  
<212> PRT  
<213> Streptococcus agalactiae

<400> 28  
Met Asn Lys Arg Arg Lys Leu Ser Lys Leu Asn Val Lys Lys Gln His  
1 5 10 15

Leu Ala Tyr Gly Ala Ile Thr Leu Val Ala Leu Phe Ser Cys Ile Leu  
20 25 30

Ala Val Thr Val Ile Phe Lys Ser Ser Gln Val Thr Thr Glu Ser Leu  
35 40 45

Ser Lys Ala Asp Lys Val Arg Val Ala Lys Lys Ser Lys Met Thr Lys  
50 55 60

Ala Thr Ser Lys Ser Lys Val Glu Asp Val Lys Gln Ala Pro Lys Pro  
65 70 75 80

Ser Gln Ala Ser Asn Glu Ala Pro Lys Ser Ser Ser Gln Ser Thr Glu  
85 90 95

Ala Asn Ser Gln Gln Gln Val Thr Ala Ser Glu Glu Ala Ala Val Glu  
100 105 110

Gln Ala Val Val Thr Glu Asn Thr Pro Ala Thr Ser Gln Ala Gln Gln  
115 120 125

Thr Tyr Ala Val Thr Glu Thr Thr Tyr Lys Pro Ala Gln His Gln Thr  
130 135 140

Ser Gly Gln Val Leu Ser Asn Gly Asn Thr Ala Gly Ala Val Gly Ser  
145 150 155 160

Ala Ala Ala Ala Gln Met Ala Ala Ala Thr Gly Val Pro Gln Ser Thr  
165 170 175

Trp Glu His Ile Ile Ala Arg Glu Ser Asn Gly Asn Pro Asn Val Ala  
180 185 190

Asn Ala Ser Gly Ala Ser Gly Leu Phe Gln Thr Met Pro Gly Trp Gly  
195 200 205

Ser Thr Ala Thr Val Gln Asp Gln Val Asn Ser Ala Ile Lys Ala Tyr  
210 215 220

Arg Ala Gln Gly Leu Ser Ala Trp Gly Tyr  
225 230

<210> 29  
<211> 360  
<212> DNA  
<213> Streptococcus agalactiae

<400> 29  
atgattgttg gacacggaat tgatttacaa gagatagagg cgattactaa agcatatgag 60  
cgtaatcaac gtttgcaga acgcgtttt accgaacaag aattgcttct ttttaagga 120  
atttccaatc ccaagcgtca gatgtcttt ttaacagggc gatgggcagc aaaagaggct 180  
tatagcaaag cacttggAAC aggaattggg aaagttaatt ttcatgatat cgaaattttA 240  
tcggatgata aaggagcGCC tttgattaca aaagaaccgt ttaatggaaa atctttgtt 300  
tcaatatctc atagtggtaa ttatgcacAA gctagtgttA ttggagga agaaaaatga 360

<210> 30  
<211> 119  
<212> PRT  
<213> Streptococcus agalactiae

<400> 30  
Met Ile Val Gly His Gly Ile Asp Leu Gln Glu Ile Glu Ala Ile Thr  
1 5 10 15

Lys Ala Tyr Glu Arg Asn Gln Arg Phe Ala Glu Arg Val Leu Thr Glu  
20 25 30

Gln Glu Leu Leu Leu Phe Lys Gly Ile Ser Asn Pro Lys Arg Gln Met  
35 40 45

Ser Phe Leu Thr Gly Arg Trp Ala Ala Lys Glu Ala Tyr Ser Lys Ala  
50 55 60

Leu Gly Thr Gly Ile Gly Lys Val Asn Phe His Asp Ile Glu Ile Leu  
65 70 75 80

Ser Asp Asp Lys Gly Ala Pro Leu Ile Thr Lys Glu Pro Phe Asn Gly  
85 90 95

Lys Ser Phe Val Ser Ile Ser His Ser Gly Asn Tyr Ala Gln Ala Ser  
100 105 110

Val Ile Leu Glu Glu Lys  
115

<210> 31  
<211> 474

<212> DNA

<213> Streptococcus agalactiae

<400> 31

atgattttg tcacagtgg gacacatgaa cagcagttca accgtcttat taaagaagtt 60  
gatagattaa aaggcacgg tgctattgtt caagaagtgt tcattcaaac gggttactca 120  
gacttcgaac ctcagaatttgc tcagtggtaa aaatttcttcatatgtatgatgat 180  
tacatgaaaag aagctgagat tgttatcaca catggcgcc cagcgacgtt tatgtcagtt 240  
atttcttag ggaaattacc agtttgtt cctaggagaa agcagttgg tgaacatatac 300  
aatgtatcatc aaatacaatt tttaaaaaaa attgcccacc tgtatccctt ggcttgatt 360  
gaagatgttag atggacttgc ggaagcgttgg aaaaggaata tagtacaga aaaatatcag 420  
ggaaaataatg atatgttttgc tcataaatta gaaaaaatta taggtgaaat atga 474

<210> 32

<211> 157

<212> PRT

<213> Streptococcus agalactiae

<400> 32

Met Ile Phe Val Thr Val Gly Thr His Glu Gln Gln Phe Asn Arg Leu  
1 5 10 15

Ile Lys Glu Val Asp Arg Leu Lys Gly Thr Gly Ala Ile Asp Gln Glu  
20 25 30

Val Phe Ile Gln Thr Gly Tyr Ser Asp Phe Glu Pro Gln Asn Cys Gln  
35 40 45

Trp Ser Lys Phe Leu Ser Tyr Asp Asp Met Asn Ser Tyr Met Lys Glu  
50 55 60

Ala Glu Ile Val Ile Thr His Gly Pro Ala Thr Phe Met Ser Val  
65 70 75 80

Ile Ser Leu Gly Lys Leu Pro Val Val Pro Arg Arg Lys Gln Phe  
85 90 95

Gly Glu His Ile Asn Asp His Gln Ile Gln Phe Leu Lys Lys Ile Ala  
100 105 110

His Leu Tyr Pro Leu Ala Trp Ile Glu Asp Val Asp Gly Leu Ala Glu  
115 120 125

Ala Leu Lys Arg Asn Ile Ala Thr Glu Lys Tyr Gln Gly Asn Asn Asp  
130 135 140

Met Phe Cys His Lys Leu Glu Lys Ile Ile Gly Glu Ile  
145 150 155

<210> 33

<211> 1203

<212> DNA

<213> Streptococcus agalactiae

<400> 33  
 ttggaagaca aattattcaa caaacatTTT ataggcatta ctatTTTaaa ctttattgtt 60  
 tatATGGTCT attATTTGTT caccGTTATC atagCTTta ttgcGactaa agagttaggt 120  
 gttAGcaCTA gccaAGcagg attAGcaACg gggatttata ttGtagggac tttgattgct 180  
 cgtCTTATAT ttggtaAGCA attAGAAGtT ctaggacgta agtagTTT acgtggagg 240  
 gCTATTTT actTactAAC aactTTAGtT tattttata tgccaAGTat cggagTAATg 300  
 tatttagtTC gtttCCTAAA tggTTTGGT tATGGCGTcG tGTcaACAGC aactAAact 360  
 attGtaACAG cCTATATAcc AGCTGATAAA agaggtgagg ggattaACTT ttacGGTcta 420  
 tcaACAAGtT tagCCGcAGC tattGGCCT tttGtaggaa catttATGCT agacaACCTT 480  
 catATTAAACT taaaATGgtT tattGtATA tGtagtATT taattGcGT tGtagtGTT 540  
 ggAGCATTG ttttCCAGT caaaaATATT ACTTAAATC cagaACAGTt agctaAAATCA 600  
 aaATCATGGA CTATTGATAG ttTCATTGAG aaaaaAGCAA ttttATCAC aattATTGCA 660  
 ttttGATGG gTATCTCTA tgCTTCCGTg ttagGTTCC aaaaATTATA tacaACAGAA 720  
 attAAATTGA tgACAGTAGG AGCTTATTc tttattGTT ATGCACTGT CATCACTTA 780  
 accAGACCt CTATGGGAAG attAAATGGAC GCTAAGGGAG ATAAGTGGGT GCTTATCCA 840  
 agttatCTGT tCTTAACtTT gggACTTGCT ttattAGGGA gtGCTATGGG aagtGTTacc 900  
 tacCTTCTAT caggTGTCTT gATGGTTT gGTTATGGCA CCTTATGTC ttGtGGCCAA 960  
 gcAGCATCAA tcaaAGGTGT tgAGGAACAT CGTTCAATA cAGCCATGTC aactTACATG 1020  
 atAGGTCTTG attTAGGTT AGGTGCTGGA CCTTACATTt tGGGACTTGT taaAGATGGT 1080  
 tttCTTGGAG ctGGTGTGCA atCCTTAgA gaattATTCT ggATAGCAGC gattATTCCt 1140  
 gttGTTGTG gtattCTATA tttCTTAAAA tcatCTAGAC aagtGAAAC taaaACTATA 1200  
 taa 1203

<210> 34  
 <211> 400  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 34  
 Met Glu Asp Lys Leu Phe Asn Lys His Phe Ile Gly Ile Thr Ile Leu  
 1 5 10 15

Asn Phe Ile Val Tyr Met Val Tyr Tyr Leu Phe Thr Val Ile Ile Ala  
 20 25 30

Phe Ile Ala Thr Lys Glu Leu Gly Val Ser Thr Ser Gln Ala Gly Leu  
 35 40 45

Ala Thr Gly Ile Tyr Ile Val Gly Thr Leu Ile Ala Arg Leu Ile Phe  
 50 55 60

Gly Lys Gln Leu Glu Val Leu Gly Arg Lys Leu Val Leu Arg Gly Gly  
 65 70 75 80

Ala Ile Phe Tyr Leu Leu Thr Thr Leu Ala Tyr Phe Tyr Met Pro Ser  
 85 90 95

Ile Gly Val Met Tyr Leu Val Arg Phe Leu Asn Gly Phe Gly Tyr Gly  
 100 105 110

Val Val Ser Thr Ala Thr Asn Thr Ile Val Thr Ala Tyr Ile Pro Ala  
 115 120 125

Asp Lys Arg Gly Glu Gly Ile Asn Phe Tyr Gly Leu Ser Thr Ser Leu  
 130 135 140

Ala Ala Ala Ile Gly Pro Phe Val Gly Thr Phe Met Leu Asp Asn Leu  
 145 150 155 160  
 His Ile Asn Phe Lys Met Val Ile Val Leu Cys Ser Ile Leu Ile Ala  
 165 170 175  
 Ile Val Val Leu Gly Ala Phe Val Phe Pro Val Lys Asn Ile Thr Leu  
 180 185 190  
 Asn Pro Glu Gln Leu Ala Lys Ser Lys Ser Trp Thr Ile Asp Ser Phe  
 195 200 205  
 Ile Glu Lys Lys Ala Ile Phe Ile Thr Ile Ala Phe Leu Met Gly  
 210 215 220  
 Ile Ser Tyr Ala Ser Val Leu Gly Phe Gln Lys Leu Tyr Thr Thr Glu  
 225 230 235 240  
 Ile Asn Leu Met Thr Val Gly Ala Tyr Phe Phe Ile Val Tyr Ala Leu  
 245 250 255  
 Val Ile Thr Leu Thr Arg Pro Ser Met Gly Arg Leu Met Asp Ala Lys  
 260 265 270  
 Gly Asp Lys Trp Val Leu Tyr Pro Ser Tyr Leu Phe Leu Thr Leu Gly  
 275 280 285  
 Leu Ala Leu Leu Gly Ser Ala Met Gly Ser Val Thr Tyr Leu Leu Ser  
 290 295 300  
 Gly Ala Leu Ile Gly Phe Gly Tyr Gly Thr Phe Met Ser Cys Gly Gln  
 305 310 315 320  
 Ala Ala Ser Ile Lys Gly Val Glu His Arg Phe Asn Thr Ala Met  
 325 330 335  
 Ser Thr Tyr Met Ile Gly Leu Asp Leu Gly Leu Gly Ala Gly Pro Tyr  
 340 345 350  
 Ile Leu Gly Leu Val Lys Asp Gly Phe Leu Gly Ala Gly Val Gln Ser  
 355 360 365  
 Phe Arg Glu Leu Phe Trp Ile Ala Ala Ile Ile Pro Val Val Cys Gly  
 370 375 380  
 Ile Leu Tyr Phe Leu Lys Ser Ser Arg Gln Val Glu Thr Lys Thr Ile  
 385 390 395 400

<210> 35  
 <211> 393  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 35  
atgaatagt aacctaaaag tcagtcaaac gaagtaaaaa atagcaagca atcagaagt 60  
aagaaagata aaaaaatgac aaaaaaaagaa caattagcct atctcaaaga gcatgagcaa 120  
gaaatcatag attatgtaaa attacataac aacccaaattg agtccgttca attcgattgg 180  
tcaagtgtaa aagtagaaca aagcggaat ggaactccac aagggggtga ttataatctt 240  
tcactgagag gaaagtttaa tcatctacaa aattcaaaaat taatagttga tttttattta 300  
gctcataaaa atgatatccc aaatatcaaa tcaatggaa tgctaaataa gccatatata 360  
cataaaaaatg gtatttggca catttatgaa tag 393

<210> 36  
<211> 137  
<212> PRT  
<213> Streptococcus agalactiae

<400> 36  
Met Ile Leu Gly Gly Cys Gln Met Asn Ser Glu Pro Lys Ser Gln Ser  
1 5 10 15  
Asn Glu Val Lys Asn Ser Lys Gln Ser Glu Val Lys Lys Asp Lys Lys  
20 25 30  
Met Thr Lys Lys Glu Gln Leu Ala Tyr Leu Lys Glu His Glu Gln Glu  
35 40 45  
Ile Ile Asp Tyr Val Lys Leu His Asn Asn Gln Ile Glu Ser Val Gln  
50 55 60  
Phe Asp Trp Ser Ser Val Lys Val Glu Gln Ser Gly Asn Gly Thr Pro  
65 70 75 80  
Gln Gly Asp Tyr Asn Leu Ser Leu Arg Gly Lys Phe Asn His Leu  
85 90 95  
Gln Asn Ser Lys Leu Ile Val Asp Phe Tyr Leu Ala His Lys Asn Asp  
100 105 110  
Ile Pro Asn Ile Lys Ser Met Gly Met Leu Asn Lys Pro Tyr Ile His  
115 120 125  
Lys Asn Gly Ile Trp His Ile Tyr Glu  
130 135

<210> 37  
<211> 927  
<212> DNA  
<213> Streptococcus agalactiae

<400> 37  
atgaaaaaga ttcgattatc aaagtttattt aaaatgattt ttgttatttt gtttttaattt 60  
agtgttagcag ctatgtttta tttttccac gttgcccaag ttccgagatga taaatcctt 120  
atttcaaatg gtcaacgtaa gcctggaaac tctttatatg cttatgataa atccttgat 180  
aagctattaa agcaaaaaat agaaatgaca aaccaaaata taaagcaagt tgcttgat 240  
gttcctgctg ctaagaaaac tcataagaca gttgttgcg ttcatggttt tgcgaatagc 300

aaagagaata tgaaggcata tggttggctg tttcataact taggatacaa tgttcttatg 360  
cctgacaaca ttgcacatgg tgaaaagtcat gggcagttga taggctatgg ctggAACGAC 420  
cgcgagaaca ttatcaaattt gacagaaatg atagtggata agaatccatc aagccaaattt 480  
actttatttgc gtgttcaat gggggagca acagtcata tggctatgg tgaaaaattt 540  
ccttagtcagg ttgttaatat cattgaagat tgggttattt ctagtggggatggatgaaattt 600  
aaatttcagg ctaaagagat gtatggttt ccagccttcc cactttata tgaagtttca 660  
acaatttcta aaatcagagc aggttttcg tatggacaag caagtagtgtt cgaacaattt 720  
aaaaagaata atttaccagc ccttttattt catggata aggataattt tggtccaaca 780  
agtatggttt atgacaacta taaagctaca gcaggttta aagagcttta tattgtaaaa 840  
ggggccaaac atgcgaaatc tttgaaaca gagccagaaa aatatgagaa acgtatctct 900  
agtttttga aaaaatatga aaaataa 927

<210> 38  
<211> 308  
<212> PRT  
<213> Streptococcus agalactiae

<400> 38  
Met Lys Lys Ile Arg Leu Ser Lys Phe Ile Lys Met Ile Val Val Ile  
1 5 10 15

Leu Phe Leu Ile Ser Val Ala Ala Ser Phe Tyr Phe Phe His Val Ala  
20 25 30

Gln Val Arg Asp Asp Lys Ser Phe Ile Ser Asn Gly Gln Arg Lys Pro  
35 40 45

Gly Asn Ser Leu Tyr Ala Tyr Asp Lys Ser Phe Asp Lys Leu Leu Lys  
50 55 60

Gln Lys Ile Glu Met Thr Asn Gln Asn Ile Lys Gln Val Ala Trp Tyr  
65 70 75 80

Val Pro Ala Ala Lys Lys Thr His Lys Thr Val Val Val Val His Gly  
85 90 95

Phe Ala Asn Ser Lys Glu Asn Met Lys Ala Tyr Trp Leu Phe His  
100 105 110

Lys Leu Gly Tyr Asn Val Leu Met Pro Asp Asn Ile Ala His Gly Glu  
115 120 125

Ser His Gly Gln Leu Ile Gly Tyr Gly Trp Asn Asp Arg Glu Asn Ile  
130 135 140

Ile Lys Trp Thr Glu Met Ile Val Asp Lys Asn Pro Ser Ser Gln Ile  
145 150 155 160

Thr Leu Phe Gly Val Ser Met Gly Gly Ala Thr Val Met Met Ala Ser  
165 170 175

Gly Glu Lys Leu Pro Ser Gln Val Val Asn Ile Ile Glu Asp Cys Gly  
180 185 190

Tyr Ser Ser Val Trp Asp Glu Leu Lys Phe Gln Ala Lys Glu Met Tyr  
195 200 205

Gly Leu Pro Ala Phe Pro Leu Leu Tyr Glu Val Ser Thr Ile Ser Lys  
210 215 220

Ile Arg Ala Gly Phe Ser Tyr Gly Gln Ala Ser Ser Val Glu Gln Leu  
225 230 235 240

Lys Lys Asn Asn Leu Pro Ala Leu Phe Ile His Gly Asp Lys Asp Asn  
245 250 255

Phe Val Pro Thr Ser Met Val Tyr Asp Asn Tyr Lys Ala Thr Ala Gly  
260 265 270

Lys Lys Glu Leu Tyr Ile Val Lys Gly Ala Lys His Ala Lys Ser Phe  
275 280 285

Glu Thr Glu Pro Glu Lys Tyr Glu Lys Arg Ile Ser Ser Phe Leu Lys  
290 295 300

Lys Tyr Glu Lys  
305

<210> 39

<211> 546

<212> DNA

<213> Streptococcus agalactiae

<400> 39

ttgaggagta atatggtaaa gacagcagtt ttaatggcga cataacaatgg cgaaaaattt 60  
atatctgaac aacttgattc aattcgccaa cagacattaa aaccagatta tgtattattg 120  
agggatgatt gttcaacgga tgaaacagtc aatgtcgta ataactatat cgcaaaaacat 180  
gagttagaag gctggaaaat tgtaaaaaac gacaaaaact taggctggcg tttaaatttt 240  
cgtcaattac ttattgatgt gtttagcctat gaggttgact atgtctttt tagtgatcaa 300  
gatgatattt ggtatcttga taaaaacgaa cgacagtttgc ccattatgtc agataaccct 360  
caaattgagg ttttgagtgc agacgttgat atcaaaaacga tgtctacaga agccagtgtt 420  
ccacattttc taacttttc ttctagtgtat agaatcagtc agtatcctaa agtatatgtat 480  
tatcaaacat tccgtccccgg atggaccatt gctatgaaga gagatttgc gcaagctatc 540  
gcttga 546

<210> 40

<211> 181

<212> PRT

<213> Streptococcus agalactiae

<400> 40

Met Arg Ser Asn Met Val Lys Thr Ala Val Leu Met Ala Thr Tyr Asn  
1 5 10 15

Gly Glu Lys Phe Ile Ser Glu Gln Leu Asp Ser Ile Arg Gln Gln Thr  
20 25 30

Leu Lys Pro Asp Tyr Val Leu Leu Arg Asp Asp Cys Ser Thr Asp Glu  
35 40 45

Thr Val Asn Val Val Asn Asn Tyr Ile Ala Lys His Glu Leu Glu Gly  
 50 55 60  
 Trp Lys Ile Val Lys Asn Asp Lys Asn Leu Gly Trp Arg Leu Asn Phe  
 65 70 75 80  
 Arg Gln Leu Leu Ile Asp Val Leu Ala Tyr Glu Val Asp Tyr Val Phe  
 85 90 95  
 Phe Ser Asp Gln Asp Asp Ile Trp Tyr Leu Asp Lys Asn Glu Arg Gln  
 100 105 110  
 Phe Ala Ile Met Ser Asp Asn Pro Gln Ile Glu Val Leu Ser Ala Asp  
 115 120 125  
 Val Asp Ile Lys Thr Met Ser Thr Glu Ala Ser Val Pro His Phe Leu  
 130 135 140  
 Thr Phe Ser Ser Ser Asp Arg Ile Ser Gln Tyr Pro Lys Val Tyr Asp  
 145 150 155 160  
 Tyr Gln Thr Phe Arg Pro Gly Trp Thr Ile Ala Met Lys Arg Asp Phe  
 165 170 175  
 Ala Gln Ala Ile Ala  
 180

<210> 41  
 <211> 579  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 41  
 atgattcatg agattcacga ttgtcaattt attgaaaaag gaagttacgt ttatggaaat 60  
 tatattaatg ctgagggcga gagagtagtt attataatca tagattttgt ccgtatgtt 120  
 agtccttattt tatatcgctt atttatgatt ttacttgac aagaagtacc tcacttgcac 180  
 gattacatct ataatgcaag agatgatcac tacgatactt ggaagttaa agaattaaag 240  
 gagtcaaacc atccagtcct tttggcattc tctgaaaggt ggcacgatag tcgcttgact 300  
 tctaaaagcc ttgcagaatg tttacaatta accgacctt atgaagaagt gaaatcgacc 360  
 atcattcaat taagacagtt cgaaaaatca gtcagaaatc ctttggtca cctgattaaa 420  
 ccttttgatg agcaagaact atatcgtaa actcaattt cttctcaagg attttttagac 480  
 cagattatct tcttggcaaa ggtaatttgtt gttgagttatg atactgttaa ttttcactac 540  
 gatacggta acaagcttataaaagata cttggat 579

<210> 42  
 <211> 192  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 42  
 Met Ile His Glu Ile His Asp Cys Gln Phe Ile Glu Lys Gly Ser Tyr  
 1 5 10 15  
 Val Tyr Leu Asn Tyr Ile Asn Ala Glu Gly Glu Arg Val Val Ile Ile

20	25	30
Ile Ile Asp Phe Val Arg Ser Val Ser Pro Ile Leu Tyr Arg Leu Phe		
35	40	45
Met Ile Leu Leu Ala Gln Glu Val Pro His Leu His Asp Tyr Ile Tyr		
50	55	60
Asn Ala Arg Asp Asp His Tyr Asp Thr Trp Lys Phe Lys Glu Leu Lys		
65	70	75
Glu Ser Asn His Pro Val Leu Leu Ala Phe Ser Glu Arg Trp His Asp		
85	90	95
Ser Arg Leu Thr Ser Lys Ser Leu Ala Glu Cys Leu Gln Leu Thr Asp		
100	105	110
Leu Asp Glu Glu Val Lys Ser Thr Ile Ile Gln Leu Arg Gln Phe Glu		
115	120	125
Lys Ser Val Arg Asn Pro Leu Ala His Leu Ile Lys Pro Phe Asp Glu		
130	135	140
Gln Glu Leu Tyr Arg Thr Thr Gln Phe Ser Ser Gln Ala Phe Leu Asp		
145	150	155
160		
Gln Ile Ile Phe Leu Ala Lys Val Ile Gly Val Glu Tyr Asp Thr Val		
165	170	175
Asn Phe His Tyr Asp Thr Val Asn Lys Leu Ile Ile Lys Ile Leu Glu		
180	185	190

<210> 43  
 <211> 465  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 43  
 atggtaaaag tttcaaattt agggtatcca cgtcttggtg aacagcgca atggaaagcaa 60  
 gcgatcgaag ctttctggc agggaatctt gaacaaaaag atttagaaaa acaactaaaa 120  
 caattacgta tcaatcatt aaagaaaaca aaagaggcag gtattgacct tattccagtg 180  
 ggggattttt cttgttatga tcatgtttg gatttgcatt ttcaattcaa tgtaatccca 240  
 aagcgtttcg atgagtatga gagaaattt gacctttatt ttgctattgc aagaggtgac 300  
 aaagataatg tcgcatcatc tatggaaaag tggtttaata ccaactacca ctacatagtc 360  
 ccagaatggg aggttgagac taaaacctcac ttgcagaata attacttact tgatctttat 420  
 ctagaagcta ggaaagtagt tggtgataaa gcaaagccgg ttatc 465

<210> 44  
 <211> 159  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 44  
 Met Glu Glu Ile Met Val Lys Val Ser Asn Leu Gly Tyr Pro Arg Leu  
     1                       5                       10                       15  
 Gly Glu Gln Arg Glu Trp Lys Gln Ala Ile Glu Ala Phe Trp Ala Gly  
     20                       25                       30  
 Asn Leu Glu Gln Lys Asp Leu Glu Lys Gln Leu Lys Gln Leu Arg Ile  
     35                       40                       45  
 Asn His Leu Lys Lys Gln Lys Glu Ala Gly Ile Asp Leu Ile Pro Val  
     50                       55                       60  
 Gly Asp Phe Ser Cys Tyr Asp His Val Leu Asp Leu Ser Phe Gln Phe  
     65                       70                       75                       80  
 Asn Val Ile Pro Lys Arg Phe Asp Glu Tyr Glu Arg Asn Leu Asp Leu  
     85                       90                       95  
 Tyr Phe Ala Ile Ala Arg Gly Asp Lys Asp Asn Val Ala Ser Ser Met  
     100                       105                       110  
 Lys Lys Trp Phe Asn Thr Asn Tyr His Tyr Ile Val Pro Glu Trp Glu  
     115                       120                       125  
 Val Glu Thr Lys Pro His Leu Gln Asn Asn Tyr Leu Leu Asp Leu Tyr  
     130                       135                       140  
 Leu Glu Ala Arg Glu Val Val Gly Asp Lys Ala Lys Pro Val Ile  
     145                       150                       155

<210> 45  
 <211> 124  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 45  
 atgggttac ttttattgct aatggtagcc aagtcaagtt tgatggttac atggctgttt 60  
 ataacgatac tgacaaaaat aaaatgttac cagatatgga ggaaggagaa agttatcaag 120  
 tttaa 124

<210> 46  
 <211> 41  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 46  
 Met Val Leu Leu Leu Leu Met Val Ala Lys Ser Ser Leu Met Val  
     1                       5                       10                       15

Thr Trp Leu Phe Ile Thr Ile Leu Thr Lys Ile Lys Cys Tyr Gln Ile  
     20                       25                       30

Trp Arg Lys Glu Lys Val Ile Lys Leu  
35 40

<210> 47  
<211> 669  
<212> DNA  
<213> Streptococcus agalactiae

<400> 47  
atgaacaaaa aaatttccgg gatcggtttc gcttcgattt cagttacttag ttttagctgca 60  
tgtggacatc gtgggtcttc taaatctggt ggtaaatcag atagcttgc 120  
gtaacagata ccgggtgggt tgatgataaa tcatttaacc aatctgggtt ggaaggatgt 180  
caagcttggg gcaagaagaa tggccttaaa aaaggagctg gtttgacta ttccaatcg 240  
gcaagtgaat ctgattatgc aactaactta gatacagctg tgtcttagtgg ttataaattt 300  
attttccgta ttggattttc tcttcatgtat gctattgata aagcagcaga caataacaaa 360  
gatgttaatt acgtcatcg tggatgtt attaaaggaa aagataatgt tgcaagtgtt 420  
gtcttgcgg ataatgaatc agcttactta gcaggtattt cagccgctaa aactacacaaa 480  
acaacaaacag ttggctttgt aggtggatg gaatctgagg ttattacccg ttttgaaaaa 540  
ggtttgaag caggtgtcaa atcaatgtt aaatcaatta aaattaaagt tgactatgct 600  
gttcattcg gtgatgctgc taaggtaag acaattgcag ccgcacaata tgcttctggc 660  
gcagatatt 669

<210> 48  
<211> 223  
<212> PRT  
<213> Streptococcus agalactiae

<400> 48  
Met Asn Lys Lys Ile Ser Gly Ile Gly Leu Ala Ser Ile Ala Val Leu  
1 5 10 15

Ser Leu Ala Ala Cys Gly His Arg Gly Ala Ser Lys Ser Gly Gly Lys  
20 25 30

Ser Asp Ser Leu Lys Val Ala Met Val Thr Asp Thr Gly Gly Val Asp  
35 40 45

Asp Lys Ser Phe Asn Gln Ser Gly Trp Glu Gly Met Gln Ala Trp Gly  
50 55 60

Lys Lys Asn Gly Leu Lys Lys Gly Ala Gly Phe Asp Tyr Phe Gln Ser  
65 70 75 80

Ala Ser Glu Ser Asp Tyr Ala Thr Asn Leu Asp Thr Ala Val Ser Ser  
85 90 95

Gly Tyr Lys Leu Ile Phe Gly Ile Gly Phe Ser Leu His Asp Ala Ile  
100 105 110

Asp Lys Ala Ala Asp Asn Asn Lys Asp Val Asn Tyr Val Ile Val Asp  
115 120 125

Asp Val Ile Lys Gly Lys Asp Asn Val Ala Ser Val Val Phe Ala Asp  
130 135 140

Asn Glu Ser Ala Tyr Leu Ala Gly Ile Ala Ala Ala Lys Thr Thr Lys  
 145 150 155 160  
 Thr Lys Thr Val Gly Phe Val Gly Gly Met Glu Ser Glu Val Ile Thr  
 165 170 175  
 Arg Phe Glu Lys Gly Phe Glu Ala Gly Val Lys Ser Val Asp Lys Ser  
 180 185 190  
 Ile Lys Ile Lys Val Asp Tyr Ala Gly Ser Phe Gly Asp Ala Ala Lys  
 195 200 205  
 Gly Lys Thr Ile Ala Ala Gln Tyr Ala Ser Gly Ala Asp Ile  
 210 215 220

<210> 49  
 <211> 609  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 49  
 atgttacatt ctaaaaaaat acattcctta tcgcttatttgc ccgttctctc ttttagcaaca 60  
 tatacaggtt tacaacccaa tcatgttagcg gctgaacaat cacaaaaaac atcaactgtt 120  
 cttatgagtc aaaaaactat tgaacataag ttaaaaaggc cagataaaga agctgctcct 180  
 ctctacgcta aaatcgacca tatccaacga catattgaag tcaaaaaagc aaaagattta 240  
 aaagttatttgc aattgtatataat taacaaagat atcaaccaac tagagaagca aaataaacgt 300  
 ctactaacta aattctatac ttcttatttgc aatcaaacat gggatagcac aagtgaagtc 360  
 aaaaaatttgc ttgataagac aacccttatcc actaacggaaa aagatagatt aaaatttat 420  
 tttgaacaac gtgcttacct tgagacaagg ttgaacgacc gctatcaaaa atttgataac 480  
 tctattgaaa accaaaataa agaactaaaa atattaacgt caaaaataga aaaaatctat 540  
 caaaaacatg gtattacaaa agaggttataaaaacttact atgctaaaaa aacagtacga 600  
 gctgactga 609

<210> 50  
 <211> 202  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 50  
 Met Leu His Ser Lys Lys Ile His Ser Leu Ser Leu Ile Ala Val Leu  
 1 5 10 15  
 Ser Leu Ala Thr Tyr Thr Ser Leu Gln Pro Asn His Val Ala Ala Glu  
 20 25 30  
 Gln Ser Gln Lys Thr Ser Thr Val Leu Met Ser Gln Lys Thr Ile Glu  
 35 40 45  
 His Lys Leu Lys Val Ala Asp Lys Glu Ala Ala Pro Leu Tyr Ala Lys  
 50 55 60  
 Ile Asp His Ile Gln Arg His Ile Glu Val Lys Lys Ala Lys Asp Leu  
 65 70 75 80

Lys Val Ile Glu Leu Tyr Ile Asn Lys Asp Ile Asn Gln Leu Glu Lys  
                   85                     90                     95  
  
 Gln Asn Lys Arg Leu Leu Thr Lys Phe Tyr Thr Ser Ile Asp Asn Gln  
                   100                    105                  110  
  
 Thr Trp Asp Ser Thr Ser Glu Val Lys Lys Leu Ile Asp Lys Thr Thr  
                   115                    120                  125  
  
 Leu Ser Thr Asn Glu Lys Asp Arg Leu Lys Leu Tyr Phe Glu Gln Arg  
                   130                    135                  140  
  
 Ala Tyr Leu Glu Thr Arg Leu Asn Asp Arg Tyr Gln Lys Phe Asp Asn  
                   145                    150                  155                  160  
  
 Ser Ile Glu Asn Gln Asn Lys Glu Leu Lys Ile Leu Thr Ser Lys Ile  
                   165                    170                  175  
  
 Glu Lys Ile Tyr Gln Lys His Gly Ile Thr Lys Glu Val Leu Lys Thr  
                   180                    185                  190  
  
 Tyr Tyr Ala Lys Lys Thr Val Arg Ala Asp  
                   195                    200

<210> 51  
<211> 600  
<212> DNA  
<213> *Streptococcus agalactiae*

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<400> 51
ctgaattccc aaaaacgcta caatcaaact tggtatccta cttatggttt ttctgatact 60
tatgcattca tggttactaa agagttgcc agacagaata aaatcaccaa gatctctgat 120
ctcaaaaagt tatcaacaac tatgaaggca ggggttgata gttcatggat gaatcgcgag 180
ggagatggat acactgattt cgctaaaaca tacgggtttt aatttcaca tatttacct 240
atgcaaattt gcttagtcta tgatgcgggtt gaaagtaaca aaatgcaatc tgttatttaggc 300
tactccactg acggtcgtat ttgcagctat gatttagaaa ttttaaggga tgataaaaaaa 360
ttctttcctc cttatgaagc ctctatggtt gtcaacaatt ctatcatcaa aaaagatcct 420
aaactaaaaaa aattactcca tcgactcgat ggtaaaatca atttaaaaaac gatgcaaaac 480
cttaattata tggtagatga taaactttt aagcttggc gtaatcatgg tcatagctgt 540
ttccctgtgtg aaattgttat ccgctcacaa ttccacaccaa catacgagcc ggaagcataa 600
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<210> 52  
<211> 199  
<212> PRT  
<213> Streptococcus agalactiae

<400> 52  
Leu Asn Ser Gln Lys Arg Tyr Asn Gln Thr Trp Tyr Pro Thr Tyr Gly  
1 5 10 15

Phe Ser Asp Thr Tyr Ala Phe Met Val Thr Lys Glu Phe Ala Arg Gln  
20 25 30

Asn Lys Ile Thr Lys Ile Ser Asp Leu Lys Lys Leu Ser Thr Thr Met  
 35 40 45  
 Lys Ala Gly Val Asp Ser Ser Trp Met Asn Arg Glu Gly Asp Gly Tyr  
 50 55 60  
 Thr Asp Phe Ala Lys Thr Tyr Gly Phe Ser His Ile Tyr Pro  
 65 70 75 80  
 Met Gln Ile Gly Leu Val Tyr Asp Ala Val Glu Ser Asn Lys Met Gln  
 85 90 95  
 Ser Val Leu Gly Tyr Ser Thr Asp Gly Arg Ile Ser Ser Tyr Asp Leu  
 100 105 110  
 Glu Ile Leu Arg Asp Asp Lys Lys Phe Phe Pro Pro Tyr Glu Ala Ser  
 115 120 125  
 Met Val Val Asn Asn Ser Ile Ile Lys Lys Asp Pro Lys Leu Lys Lys  
 130 135 140  
 Leu Leu His Arg Leu Asp Gly Lys Ile Asn Leu Lys Thr Met Gln Asn  
 145 150 155 160  
 Leu Asn Tyr Met Val Asp Asp Lys Leu Leu Glu Ala Trp Arg Asn His  
 165 170 175  
 Gly His Ser Cys Phe Leu Cys Glu Ile Val Ile Arg Ser Gln Phe His  
 180 185 190  
 Thr Thr Tyr Glu Pro Glu Ala  
 195

<210> 53  
 <211> 849  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 53  
 atgaaaaaat tactttccct aacatgtcta atcatgtatgt ctttatgttt agtggcatgt 60  
 actaagcaag caatgtcgta taagaaggca atgtcgta agcaaattaa agataagaat 120  
 agtaaaagaaa aggtgattac tggtaact tacagcaaac ctacatctac ctttttagat 180  
 ttgattaaag ataatgtaaa agaaaaagga tatactttaa aggttgtcat ggtcttgac 240  
 tatattcagg ctaacattgc tttagaaaaac aaagaacatg atgtaaacct ttacaacat 300  
 gaattttca tgagtatctt taataaggaa aatgatggc atctagtgtc aattacacca 360  
 atttatcatt cattggctgg ttttatgtt caacatttgaa aaaatattgc cgagcttaaa 420  
 gacggtgcta aggttagcgtat tccgtctgtat cctgccaata tgactagago tctgcttata 480  
 ttgcaagaaa agaaacttat caccttaaag aatacgtcca aaaagaccaa ggctatcgaa 540  
 gatattatta ctaaccctaa aaaattacga attgaacctg tagcattact taacctcaat 600  
 caggcctatt ttgaatatgta ccttgtctt aatttcctg gatatgtgac aaaaatcaat 660  
 ctatgtccta aaagggatag attattatata gagaaaaaac cagatatccg tttgcaggt 720  
 gccttggtag ctcgtgaaga taataaaaat agtgataaaa taaaagtact taaagaagta 780  
 ctaacaagta aagagattcg tcactatatac actaaggaga ttccaagtga agcagacgtt 840  
 gcgttctag 849

<210> 54  
<211> 282  
<212> PRT  
<213> Streptococcus agalactiae

<400> 54  
Met Lys Lys Leu Leu Ser Leu Thr Cys Leu Ile Met Met Ser Leu Cys  
1 5 10 15

Leu Val Ala Cys Thr Lys Gln Ala Met Ser Ser Lys Gln Ala Met Ser  
20 25 30

Ser Lys Gln Ile Lys Asp Lys Asn Ser Lys Glu Lys Val Ile Thr Val  
35 40 45

Ala Thr Tyr Ser Lys Pro Thr Ser Thr Phe Leu Asp Leu Ile Lys Asp  
50 55 60

Asn Val Lys Glu Lys Gly Tyr Thr Leu Lys Val Val Met Val Ser Asp  
65 70 75 80

Tyr Ile Gln Ala Asn Ile Ala Leu Glu Asn Lys Glu His Asp Ala Asn  
85 90 95

Leu Leu Gln His Glu Phe Phe Met Ser Ile Phe Asn Lys Glu Asn Asp  
100 105 110

Gly His Leu Val Ser Ile Thr Pro Ile Tyr His Ser Leu Ala Gly Phe  
115 120 125

Tyr Gly Gln His Leu Lys Asn Ile Ala Glu Leu Lys Asp Gly Ala Lys  
130 135 140

Val Ala Ile Pro Ser Asp Pro Ala Asn Met Thr Arg Ala Leu Leu Leu  
145 150 155 160

Leu Gln Glu Lys Lys Leu Ile Thr Leu Lys Asn Thr Ser Lys Lys Thr  
165 170 175

Lys Ala Ile Glu Asp Ile Ile Thr Asn Pro Lys Lys Leu Arg Ile Glu  
180 185 190

Pro Val Ala Leu Leu Asn Leu Asn Gln Ala Tyr Phe Glu Tyr Asp Leu  
195 200 205

Val Phe Asn Phe Pro Gly Tyr Val Thr Lys Ile Asn Leu Val Pro Lys  
210 215 220

Arg Asp Arg Leu Leu Tyr Glu Lys Lys Pro Asp Ile Arg Phe Ala Gly  
225 230 235 240

Ala Leu Val Ala Arg Glu Asp Asn Lys Asn Ser Asp Lys Ile Lys Val  
245 250 255

Leu Lys Glu Val Leu Thr Ser Lys Glu Ile Arg His Tyr Ile Thr Lys  
260 265 270

Glu Ile Pro Ser Glu Ala Asp Val Ala Phe  
275 280

<210> 55  
<211> 711  
<212> DNA  
<213> Streptococcus agalactiae

<400> 55  
ctgtggcta aggaaaccac tatgtctgtc ctttggtatc aaaattctgc agaagccaag 60  
gtttagtatt tacaaggta taatgttgc aaaaatgaagt tagatgattg gttacaaaag 120  
cccagtgaaa aaccatattc aattatctta gatttagatg aaacagttt agataatagc 180  
ccatatcaag caaagaatat taaagatggc tctagttca cgccagagag ttgggataaa 240  
tgggtgcaaa agaaatcagc taaggctgtt gcgggtgcc aagaattttt gaagtatgct 300  
aatgaaaagg gaataaaaat ttattatgtc tcagatcgta cagatgctca agttgatgcg 360  
actaaagaaa atttagagaa ggaaggtata cctgttcaag ggaaagacca cttgctttc 420  
cttaaaaaag gaatgaaatc taaagagagt cgccgtcagg cagttcaaaa agataccaaat 480  
ttaattatgc ttttggaga taatttagtt gatTTGCTG attttctaa atcatctagt 540  
acagatagag aacaactact aactaaactt caaaGTGAGT ttGGTAGTAA atttatgtt 600  
ttcccaaATC ctatgtacgg ttcttggaa agtgctattt atcaaggaaa acatctggat 660  
gttcaaaaac aattgaaaga acgacaaaaa atgttgcatt cgtatgatta a 711

<210> 56  
<211> 236  
<212> PRT  
<213> Streptococcus agalactiae

<400> 56  
Leu Leu Ala Lys Glu Thr Thr Met Ser Val Leu Trp Tyr Gln Asn Ser  
1 5 10 15  
Ala Glu Ala Lys Ala Leu Tyr Leu Gln Gly Tyr Asn Val Ala Lys Met  
20 25 30  
Lys Leu Asp Asp Trp Leu Gln Lys Pro Ser Glu Lys Pro Tyr Ser Ile  
35 40 45  
Ile Leu Asp Leu Asp Glu Thr Val Leu Asp Asn Ser Pro Tyr Gln Ala  
50 55 60  
Lys Asn Ile Lys Asp Gly Ser Ser Phe Thr Pro Glu Ser Trp Asp Lys  
65 70 75 80  
Trp Val Gln Lys Ser Ala Lys Ala Val Ala Gly Ala Lys Glu Phe  
85 90 95  
Leu Lys Tyr Ala Asn Glu Lys Gly Ile Lys Ile Tyr Tyr Val Ser Asp  
100 105 110  
Arg Thr Asp Ala Gln Val Asp Ala Thr Lys Glu Asn Leu Glu Lys Glu  
115 120 125  
Gly Ile Pro Val Gln Gly Lys Asp His Leu Leu Phe Leu Lys Lys Gly  
130 135 140  
Met Lys Ser Lys Glu Ser Arg Arg Gln Ala Val Gln Lys Asp Thr Asn  
145 150 155 160  
Leu Ile Met Leu Phe Gly Asp Asn Leu Val Asp Phe Ala Asp Phe Ser  
165 170 175

Lys Ser Ser Ser Thr Asp Arg Glu Gln Leu Leu Thr Lys Leu Gln Ser  
180 185 190  
Glu Phe Gly Ser Lys Phe Ile Val Phe Pro Asn Pro Met Tyr Gly Ser  
195 200 205  
Trp Glu Ser Ala Ile Tyr Gln Gly Lys His Leu Asp Val Gln Lys Gln  
210 215 220  
Leu Lys Glu Arg Gln Lys Met Leu His Ser Tyr Asp  
225 230 235

<210> 57  
<211> 128  
<212> DNA  
<213> Streptococcus agalactiae

<400> 57  
atggataata aaggtaataa cgccaatgtg attgatgcaa tcgctgaggg tgcaaggaca 60  
gggcacaaa tggcttc aattggtgct agtttgattt cctttgttgg tttagttct 120  
ttgattaa 128

<210> 58  
<211> 42  
<212> PRT  
<213> Streptococcus agalactiae

<400> 58  
Met Asp Asn Lys Gly Asn Asn Ala Asn Val Ile Asp Ala Ile Ala Glu  
1 5 10 15

Gly Ala Ser Thr Gly Ala Gln Met Ala Phe Ser Ile Gly Ala Ser Leu  
20 25 30

Ile Ala Phe Val Gly Leu Val Ser Leu Ile  
35 40

<210> 59  
<211> 573  
<212> DNA  
<213> Streptococcus agalactiae

<400> 59  
atgaaaaaga aaaacaaaatc ctctaaccatt gctataattt caatctttt tgctattatg 60  
cttgtcattc attttttgc atcattttt ttttagttt ggttagtccc tattaaacct 120  
actttgatgc atatcccagt tattattgca tctatagcct atggacctcg tattggtgca 180  
actctaggcg ccttaatggg ggggatcagc gtatctaaca gcagcattgt tctattacca 240  
acgaggtaacc tcttctcacc ttttggaa aatggtaatt ttatcgct aattattgca 300  
cttgtaccac gtattctaattt cgggattattt ctttatttcg tttacaattt actacacaac 360  
cgcttgggtt tggctatctc aggtgctata ggctctcaa caaacacagt atttggta 420  
tctggaaattt ttatctttt ttcaagtact tataatggga atatcaagct aatgctcgct 480  
gggattattt catctaattt attagctgag atggtcattt cagcttatcat tgtatatcta 540

actgatcctc gtattctcaa tattaaacat taa

573

<210> 60

<211> 190

<212> PRT

<213> Streptococcus agalactiae

<400> 60

Met Lys Lys Lys Asn Lys Ser Ser Asn Ile Ala Ile Ile Ala Ile Phe  
1 5 10 15

Phe Ala Ile Met Leu Val Ile His Phe Leu Ser Ser Phe Ile Phe Ser  
20 25 30

Phe Trp Leu Val Pro Ile Lys Pro Thr Leu Met His Ile Pro Val Ile  
35 40 45

Ile Ala Ser Ile Ala Tyr Gly Pro Arg Ile Gly Ala Thr Leu Gly Ala  
50 55 60

Leu Met Gly Gly Ile Ser Val Ala Asn Ser Ser Ile Val Leu Leu Pro  
65 70 75 80

Thr Ser Tyr Leu Phe Ser Pro Phe Val Glu Asn Gly Asn Phe Tyr Ser  
85 90 95

Leu Ile Ile Ala Leu Val Pro Arg Ile Leu Ile Gly Ile Ile Pro Tyr  
100 105 110

Phe Val Tyr Lys Leu Leu His Asn Arg Phe Gly Leu Ala Ile Ser Gly  
115 120 125

Ala Ile Gly Ser Leu Thr Asn Thr Val Phe Val Leu Ser Gly Ile Phe  
130 135 140

Ile Phe Phe Ser Ser Thr Tyr Asn Gly Asn Ile Lys Leu Met Leu Ala  
145 150 155 160

Gly Ile Ile Ser Ser Asn Ser Leu Ala Glu Met Val Ile Ala Ala Ile  
165 170 175

Ile Val Tyr Leu Thr Asp Pro Arg Ile Leu Asn Ile Lys His  
180 185 190

<210> 61

<211> 251

<212> DNA

<213> Streptococcus agalactiae

<400> 61

ttgaatatga cattacaaga cgaaatcaaa aaacgcgtt ctttgccat catcttcac 60  
ccggatgtcg gtaagacgac tattactgag caattattat attttggtag tgaaattaga 120  
gaagcaggga cagtaaaagg gaaaaaatca ggtacttttgc caaagtccga ctggatggat 180  
attgaaaagc aacgggtat ctctgttact tcattctgttga tgcaatttga ttacgcgggt 240

aaacgtgtta a

251

<210> 62

<211> 83

<212> PRT

<213> Streptococcus agalactiae

<400> 62

Met Asn Met Thr Leu Gln Asp Glu Ile Lys Lys Arg Arg Thr Phe Ala  
1 5 10 15

Ile Ile Ser His Pro Asp Ala Gly Lys Thr Thr Ile Thr Glu Gln Leu  
20 25 30

Leu Tyr Phe Gly Gly Glu Ile Arg Glu Ala Gly Thr Val Lys Gly Lys  
35 40 45

Lys Ser Gly Thr Phe Ala Lys Ser Asp Trp Met Asp Ile Glu Lys Gln  
50 55 60

Arg Gly Ile Ser Val Thr Ser Ser Val Met Gln Phe Asp Tyr Ala Gly  
65 70 75 80

Lys Arg Val

<210> 63

<211> 303

<212> DNA

<213> Streptococcus agalactiae

<400> 63

atggcagata aaaacagaac atttaaacctt gtaggtgcag gatcttctag cacacaagaa 60  
aaaattgaaa agcctgctct ttcgtttatg caagatgcgt ggcgtcgctt gaaaaaaaaac 120  
aaatttagcag tagtttcaact ctatttatta gctctttac ttacttttc gttagcctca 180  
aatttatttg taactcagaa ggatgcta at gggtttgatt cgaaaaaaagt aacgacatat 240  
cgcaacttac cacctaaattt gagtcaaac cttcctttt ggaatggtag cattaatcca 300  
tca 303

<210> 64

<211> 101

<212> PRT

<213> Streptococcus agalactiae

<400> 64

Met Ala Asp Lys Asn Arg Thr Phe Lys Leu Val Gly Ala Gly Ser Ser  
1 5 10 15

Ser Thr Gln Glu Lys Ile Glu Lys Pro Ala Leu Ser Phe Met Gln Asp  
20 25 30

Ala Trp Arg Arg Leu Lys Lys Asn Lys Leu Ala Val Val Ser Leu Tyr  
35 40 45

Leu Leu Ala Leu Leu Leu Thr Phe Ser Leu Ala Ser Asn Leu Phe Val  
50 55 60

Thr Gln Lys Asp Ala Asn Gly Phe Asp Ser Lys Lys Val Thr Thr Tyr  
65 70 75 80

Arg Asn Leu Pro Pro Lys Leu Ser Ser Asn Leu Pro Phe Trp Asn Gly  
85 90 95

Ser Ile Asn Pro Ser  
100

<210> 65

<211> 154

<212> DNA

<213> Streptococcus agalactiae

<400> 65

atgaaaagaa aacagtttat aaaatttagga attgcaacct tactaacggt tatttcgctt 60  
tacacaccaa taaaccttagc tacaaatcat accacagaaa atattgtac tgctcaagag 120  
tataaaacaa agagaatggt actttacctt ttta 154

<210> 66

<211> 51

<212> PRT

<213> Streptococcus agalactiae

<400> 66

Met Lys Arg Lys Gln Phe Ile Lys Leu Gly Ile Ala Thr Leu Leu Thr  
1 5 10 15

Val Ile Ser Leu Tyr Thr Pro Ile Asn Leu Ala Thr Asn His Thr Thr  
20 25 30

Glu Asn Ile Val Thr Ala Gln Glu Tyr Lys Thr Lys Glu Asn Ile Leu  
35 40 45

Phe Leu Leu  
50

<210> 67

<211> 144

<212> DNA

<213> Streptococcus agalactiae

<400> 67

atgtttata atccttact ttttattgta ctaattacaa ttgctgtatt tttcttagct 60  
aagaaaaaat ggcaattacc gacattact ttcattggtt tgctatttat ctataaccaa 120  
gggctgtggg aacagttgat taat 144

<210> 68  
<211> 48  
<212> PRT  
<213> Streptococcus agalactiae

<400> 68  
Met Phe Tyr Asn Pro Leu Leu Phe Ile Val Leu Ile Thr Ile Ala Val  
1 5 10 15  
Phe Phe Leu Ala Lys Lys Trp Gln Leu Pro Thr Phe Thr Phe Ile  
20 25 30  
Gly Leu Leu Phe Ile Tyr Asn Gln Gly Leu Trp Glu Gln Leu Ile Asn  
35 40 45

<210> 69  
<211> 453  
<212> DNA  
<213> Streptococcus agalactiae

<400> 69  
gtggcgaaa taatgaaaaa acatataaaa agtatcatac caatagttct tattggtag 60  
atactaggag gctgtcaaat gaatagtcaa cataaaagtc agtataatga aacaaaaagt 120  
agcaagcaat cagaagtcaa gaaagataaa aaaatgacaa aaaaagaaca attagcttat 180  
ctcaaagagc atgaacaaga aataattgtat ttgttaaat ctcagaataa aaagatagaa 240  
tctgtacaaa ttgattggaa tgatgttcga tggagtaaag gggaaatgg tacacccaa 300  
ggaggaggag aggggattt acttttggg gagattaata atgattctga atcaagttgg 360  
agagttgata ttgatataga aaaaggacgg ctagaccta aaaaatgtta tttaggacaa 420  
cctatacgaa ttggaggtaa attatttgag taa 453

<210> 70  
<211> 150  
<212> PRT  
<213> Streptococcus agalactiae

<400> 70  
Met Val Gln Ile Met Lys Lys His Ile Lys Ser Ile Ile Pro Ile Val  
1 5 10 15  
Leu Ile Gly Met Ile Leu Gly Gly Cys Gln Met Asn Ser Glu His Lys  
20 25 30  
Ser Gln Tyr Asn Glu Thr Lys Ser Ser Lys Gln Ser Glu Val Lys Lys  
35 40 45  
Asp Lys Lys Met Thr Lys Lys Glu Gln Leu Ala Tyr Leu Lys Glu His  
50 55 60  
Glu Gln Glu Ile Ile Asp Phe Val Lys Ser Gln Asn Lys Lys Ile Glu  
65 70 75 80

Ser Val Gln Ile Asp Trp Asn Asp Val Arg Trp Ser Lys Gly Gly Asn  
85 90 95

Gly Thr Pro Gln Gly Gly Glu Gly Ile Leu Leu Phe Gly Glu Ile  
100 105 110

Asn Asn Asp Ser Glu Ser Ser Trp Arg Val Asp Ile Asp Ile Glu Lys  
115 120 125

Gly Arg Leu Asp Leu Lys Asn Met Tyr Leu Gly Gln Pro Ile Arg Ile  
130 135 140

Gly Gly Lys Leu Phe Glu  
145 150

<210> 71

<211> 1455

<212> DNA

<213> Streptococcus agalactiae

<400> 71

atggaaatttt tggcttataa tgcttcaca gcaatcggtg tttctattcc gcacggtaat 60  
catttccact ttattcacta taaggatatg tctccattag agttagaagc aacaaggatg 120  
gtggcagagc atagaggaca tcataattgtat gcatttaggaa aaaaagattc tacagagaaaa 180  
ccaaagcata tttctcatga acctaataag gaacctcaca cagaggaaga acaccatgca 240  
gtaacaccga aagaccaacg taaaggcaaa ccaaatagcc agattgtcta cagtgcctaa 300  
gaaattgaag aggcaaaaaa agctggtaaa tacacaacat ctgatggta catttttgat 360  
gctaaagata ttaaaaaaaga tacaggtaca ggttatgtca ttccacatat gacacatgag 420  
cattgggtac caaagaaaaa tttatcagag tcggaatataa aagcagctca agaatttctt 480  
tcagggaaaat ctgaagcaaa tcaagacaaaa ccaaaaacag gtaaaacagc tcaagaaatc 540  
tatgaggcaa ttgaacccaa agcaattgtt aaacctgaa atttatttattt tggaattgca 600  
caagcgacag actataagaa tggtacattt gtaattcctc ataaagatca ttaccattat 660  
gtggaaattaa aatggttga tgaagaaaaa gatcttttag ctgattcaga taagacatat 720  
tctttagaag actattttagc tacggctaaa tattacatga tgcaccccaga aaaacgtcct 780  
aaagttgaag gatggggtaa agatgctgaa atttataagg aaaaggactc taataaagca 840  
gataaaaccaa gtcctgcacc aactgataat aaatcaacat caaattctag tgacaaaaac 900  
ttaagtgtc cagaagtatt caaacaagca aaaccagaaa aaattgtacc gcttgataaa 960  
attgctgctc acatggcata tgcagttgga tttgaagatg atcaattgtat tgttcctcat 1020  
catgatcatt atcataatgt tcctatggca tggtttgaca agggtggttt atggaaagca 1080  
ccagaaggct atacattaca acaactcttc tcaacaatta aatactacat ggaacatcct 1140  
aatgaattac caaaaagaaaa gggtgggaa cacgacagtg atcataacaa aggctcaaatt 1200  
aaagacaata aagccaaaaa ttatgctcca gatgaagaac ctgaagattc agggaaagta 1260  
actcacaact atggttttt tgatgttaat aaaggttcag acgaagaaga accagaaaaa 1320  
caagaagatg aatcagagct agatgaatat gaacttaggaa tggcacaaaa cgctaagaaa 1380  
tatggatgg atagacaatc tttgaaaaag caactcatcc aattatcaaa taaatataatgt 1440  
gtaagttttg aaagc 1455

<210> 72

<211> 485

<212> PRT

<213> Streptococcus agalactiae

<400> 72

Met Glu Phe Leu Ala Tyr Asn Ala Phe Thr Ala Ile Gly Val Ser Ile

1	5	10	15
Pro His Gly Asn His Phe His Phe Ile His Tyr Lys Asp Met Ser Pro			
20	25		30
Leu Glu Leu Glu Ala Thr Arg Met Val Ala Glu His Arg Gly His His			
35	40		45
Ile Asp Ala Leu Gly Lys Lys Asp Ser Thr Glu Lys Pro Lys His Ile			
50	55		60
Ser His Glu Pro Asn Lys Glu Pro His Thr Glu Glu Glu His His Ala			
65	70		80
Val Thr Pro Lys Asp Gln Arg Lys Gly Lys Pro Asn Ser Gln Ile Val			
85	90		95
Tyr Ser Ala Gln Glu Ile Glu Glu Ala Lys Lys Ala Gly Lys Tyr Thr			
100	105		110
Thr Ser Asp Gly Tyr Ile Phe Asp Ala Lys Asp Ile Lys Lys Asp Thr			
115	120		125
Gly Thr Gly Tyr Val Ile Pro His Met Thr His Glu His Trp Val Pro			
130	135		140
Lys Lys Asp Leu Ser Glu Leu Lys Ala Ala Gln Glu Phe Leu			
145	150		160
Ser Gly Lys Ser Glu Ala Asn Gln Asp Lys Pro Lys Thr Gly Lys Thr			
165	170		175
Ala Gln Glu Ile Tyr Glu Ala Ile Glu Pro Lys Ala Ile Val Lys Pro			
180	185		190
Glu Asp Leu Leu Phe Gly Ile Ala Gln Ala Thr Asp Tyr Lys Asn Gly			
195	200		205
Thr Phe Val Ile Pro His Lys Asp His Tyr His Tyr Val Glu Leu Lys			
210	215		220
Trp Phe Asp Glu Glu Lys Asp Leu Leu Ala Asp Ser Asp Lys Thr Tyr			
225	230		240
Ser Leu Glu Asp Tyr Leu Ala Thr Ala Lys Tyr Tyr Met Met His Pro			
245	250		255
Glu Lys Arg Pro Lys Val Glu Gly Trp Gly Lys Asp Ala Glu Ile Tyr			
260	265		270
Lys Glu Lys Asp Ser Asn Lys Ala Asp Lys Pro Ser Pro Ala Pro Thr			
275	280		285
Asp Asn Lys Ser Thr Ser Asn Ser Ser Asp Lys Asn Leu Ser Ala Ala			
290	295		300
Glu Val Phe Lys Gln Ala Lys Pro Glu Lys Ile Val Pro Leu Asp Lys			

305	310	315	320
Ile Ala Ala His Met Ala Tyr Ala Val Gly Phe Glu Asp Asp Gln Leu			
325	330	335	
Ile Val Pro His His Asp His Tyr His Asn Val Pro Met Ala Trp Phe			
340	345	350	
Asp Lys Gly Gly Leu Trp Lys Ala Pro Glu Gly Tyr Thr Leu Gln Gln			
355	360	365	
Leu Phe Ser Thr Ile Lys Tyr Tyr Met Glu His Pro Asn Glu Leu Pro			
370	375	380	
Lys Glu Lys Gly Trp Gly His Asp Ser Asp His Asn Lys Gly Ser Asn			
385	390	395	400
Lys Asp Asn Lys Ala Lys Asn Tyr Ala Pro Asp Glu Glu Pro Glu Asp			
405	410	415	
Ser Gly Lys Val Thr His Asn Tyr Gly Phe Tyr Asp Val Asn Lys Gly			
420	425	430	
Ser Asp Glu Glu Pro Glu Lys Gln Glu Asp Glu Ser Glu Leu Asp			
435	440	445	
Glu Tyr Glu Leu Gly Met Ala Gln Asn Ala Lys Lys Tyr Gly Met Asp			
450	455	460	
Arg Gln Ser Phe Glu Lys Gln Leu Ile Gln Leu Ser Asn Lys Tyr Ser			
465	470	475	480
Val Ser Phe Glu Ser			
485			

<210> 73  
 <211> 855  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 73  
 atgaggaaac gttttccctt gctaaatttt attgttgtta cttttatTTT ctttttcttt 60  
 attcttttc cgctttttaa ggccaaagat tgcagggtt tttatgcaag ttttcaagga 120  
 gatcattggg acatttgtaa cgcatttgat ttccgtatt tacatcgctt tgatctcatt 180  
 aaaggtaaag aaaatcaact ttactttata gggtgtacaa ttgctaacag taaagctac 240  
 actgaggatt ggagtgtataa aggccgaatt ttgtgtgct gtttaataac tcaaaaaccat 300  
 acatttggaaag gattgcaaca attgcctcaa actttatataaaaatcatgg atactatgcc 360  
 attcaggatg aaggatattc attgattact tcagtagaa gggtaactcaa actcacttat 420  
 ccagaatttt ctactacagg cgactggcaa tttagaacggc ttttcgtatga ggagacaagc 480  
 gatgttgtga aagtggatat taatcaggat ggtaaggatg agtatgtat catccaaggt 540  
 tttcatggag atcgTTTactg tatTTTact gaaGATTGCGT gtcgagaatt attccattat 600  
 CCTGAAAAAA CCCCATTGG TCACGCTATT TGGAGTGGTC GTTACTTAA TCAGACTGT 660  
 TTCGTATTGCGT GGTGGCGATC AGAAAAGCA GAATTAAGGC TTTCGTTACTT TGTAGATGGG 720  
 CACTGGTTT CAGAATTAGT AGATGCAAAA GCAGCTCTA GTAATGTCTT AGCTTTGAA 780  
 AAAGATGGAA AAGCTTATCT TTTCTCAGCC AATAACGGAC GTGGCGAAGT TGCTCTTAT 840

caatttagtaa aataa

855

<210> 74

<211> 284

<212> PRT

<213> Streptococcus agalactiae

<400> 74

Met Arg Lys Arg Phe Ser Leu Leu Asn Phe Ile Val Val Thr Phe Ile  
1 5 10 15

Phe Phe Phe Phe Ile Leu Phe Pro Leu Phe Lys Ala Lys Asp Cys Gln  
20 25 30

Val Val Tyr Ala Ser Phe Gln Gly Asp His Trp Asp Ile Cys Asn Ala  
35 40 45

Phe Asp Phe Pro Tyr Leu His Arg Phe Asp Leu Ile Lys Gly Lys Glu  
50 55 60

Asn Gln Leu Tyr Phe Ile Gly Cys Thr Ile Ala Asn Ser Lys Ala Tyr  
65 70 75 80

Thr Glu Asp Trp Ser Asp Lys Gly Arg Ile Phe Val Ala Arg Phe Asn  
85 90 95

Thr Gln Asn His Thr Leu Glu Gly Leu Gln Gln Leu Pro Gln Thr Leu  
100 105 110

Leu Lys Asn His Gly Tyr Tyr Ala Ile Gln Asp Glu Gly Tyr Ser Leu  
115 120 125

Ile Thr Ser Val Glu Gly Val Leu Lys Leu Thr Tyr Pro Glu Phe Ser  
130 135 140

Thr Thr Gly Asp Trp Gln Leu Glu Arg Leu Phe Asp Glu Glu Thr Ser  
145 150 155 160

Asp Val Val Lys Val Asp Ile Asn Gln Asp Gly Lys Asp Glu Tyr Val  
165 170 175

Ile Ile Gln Gly Phe His Gly Asp Arg Leu Arg Ile Phe Thr Glu Asp  
180 185 190

Phe Gly Arg Glu Leu Phe His Tyr Pro Glu Lys Thr Pro Phe Gly His  
195 200 205

Ala Ile Trp Ser Gly Arg Leu Leu Asn Gln Thr Cys Phe Val Phe Gly  
210 215 220

Trp Arg Ser Glu Lys Ala Glu Leu Arg Leu Phe His Phe Val Asp Gly  
225 230 235 240

His Leu Val Ser Glu Leu Val Asp Ala Lys Ala Ala Ser Ser Asn Val  
245 250 255

Leu Ala Phe Glu Lys Asp Gly Lys Ala Tyr Leu Phe Ser Ala Asn Asn  
260 265 270

Gly Arg Gly Glu Val Ala Leu Tyr Gln Leu Val Lys  
275 280

<210> 75  
<211> 2070  
<212> DNA  
<213> Streptococcus agalactiae

<400> 75  
atgaagcaca agttaaaagc tttacgctt gctttactct caatattctt tgggtttgg 60  
ggaaaggcgtca gtgcagagac tgtgaatatt gtttctgata cagcatacgc tccattcgaa 120  
tttaaagatt ctgatcaaac ttataaagga atcgatgtt acatcgtaa cgaagtcgct 180  
aagcgtgctg gctggaatgt taacatgacg tatccaggtt ttgatgccgc agttaacgct 240  
gttcaatctg gacaggcaga tgcgctaatg gccggaacta ctgttactga agcacgtaaa 300  
aaagtcttta atttctcaga tacttattac gatacttccg ttattcttta tactaaaaat 360  
aataataaag tcacaaaacta caaacaaacta aaaggaaaag tagtccgtgt aaaaaatgga 420  
acagctgctc aaagcttctt agaagaaaaat aaatctaaat acgctataa agttaaaaca 480  
tttgatacaa gcgacctaata gaataacacg cttgattctg gtttattttt cgccgctatg 540  
gacgatcaac cagttgtgca atttgcgata aatcaaggaa aagcttacgc cattaacatg 600  
gaaggcgaag cagttggtag ctggcattt gctgtcaaaa aaggtgtgg acacgataat 660  
ctaattaaag aatttaacac agctttgca caaatgaaat cagatggcac ttataatgac 720  
atcatggata aatggcttgg aaaagacgct aaaaaacaa gcggcaaagc aacaggtaat 780  
gc当地atgaaa aagcaactcc tgtaaagcca agttataaaa ttgtttctga ttcttcattc 840  
gcaccatttcg aatataaaaa cggtaaaggg aataatactg gtttgcata ggaattaaatc 900  
acgaaaatttgc当地aaacagca aggtttaaa cttgatatactt caaatccagg ttttgatgcc 960  
gctttaaatg ctgtccatc tggcaagct gacgggttta ttgcaggagc cacaatcaca 1020  
gaagcacfcc aaaaaatctt tgattttctt gatccttattt acacatctt cgttatctt 1080  
gcggtaaaaa aaggaagcaa tgtaaatac taccaagatt taaaaggaaa aacagttgg 1140  
gctaaaaatg gtactgcctc atataacttgg ttatcagacc acgcagataa gtacaactat 1200  
catgttaaag catttgcata agcatctaca atgtatgata gtatgaaactc aggttcaatt 1260  
gtatgcataa tggatgcata agccgttctt gcttacgta ttaatcaagg tcgttaattt 1320  
gaaacaccta tcaaagggtga aaaatcaggc gatatcggtt ttgcagtgaa aaaaggggca 1380  
aatccagaat taattaaat gtttaacaac ggttctgctt cactcaaaaa atcgggtgag 1440  
tacgataaac ttgttaaaaa ataccttcc acagccagca cttttcaaaa cgataaaagct 1500  
gctaaacctg tagatgaatc aactattttt gggtaattt ctaataacta caaacaatttgc 1560  
ctatctggta ttggactac tttaagttt actcttatct cgttgcgtat tgctatgg 1620  
attggatttata tctttggat gatgagcgtt tcaccaagta atactctccg cacaatttca 1680  
atgatttttgc ttgatattttt ccgtggattt ccactcatga ttgtggccgc ttttattttc 1740  
tgggttattt ctaatttaat cggaaagcatc acaggtcacc aaagtccaaat taatgacttc 1800  
gttgcgtcta ctatcgctt ttcttttaat ggtggcgtt acattgtgtt aattgtacgt 1860  
gggtgttattt aagctgttcc ttctggtcaa atggaaagcaa gtgcagctt aggtattttct 1920  
tacggcaaaa ctatgc当地aaat ggttatctt cctcaaggacg tacgccttat gttaccaaac 1980  
tttaccaacc aatttgcata ctcattaaag gatacacaaca ttgtatcagc aatcgactt 2040  
gttgcgtcta tccaaacttgg taaatcataa 2070

<210> 76  
<211> 689  
<212> PRT  
<213> Streptococcus agalactiae

<400> 76

Met Lys His Lys Leu Lys Ala Phe Thr Leu Ala Leu Leu Ser Ile Phe  
1 5 10 15

Phe Val Phe Gly Gly Lys Val Ser Ala Glu Thr Val Asn Ile Val Ser  
20 25 30

Asp Thr Ala Tyr Ala Pro Phe Glu Phe Lys Asp Ser Asp Gln Thr Tyr  
35 40 45

Lys Gly Ile Asp Val Asp Ile Val Asn Glu Val Ala Lys Arg Ala Gly  
50 55 60

Trp Asn Val Asn Met Thr Tyr Pro Gly Phe Asp Ala Ala Val Asn Ala  
65 70 75 80

Val Gln Ser Gly Gln Ala Asp Ala Leu Met Ala Gly Thr Thr Val Thr  
85 90 95

Glu Ala Arg Lys Lys Val Phe Asn Phe Ser Asp Thr Tyr Tyr Asp Thr  
100 105 110

Ser Val Ile Leu Tyr Thr Lys Asn Asn Asn Lys Val Thr Asn Tyr Lys  
115 120 125

Gln Leu Lys Gly Lys Val Val Gly Val Lys Asn Gly Thr Ala Ala Gln  
130 135 140

Ser Phe Leu Glu Glu Asn Lys Ser Lys Tyr Gly Tyr Lys Val Lys Thr  
145 150 155 160

Phe Asp Thr Ser Asp Leu Met Asn Asn Ser Leu Asp Ser Gly Ser Ile  
165 170 175

Tyr Ala Ala Met Asp Asp Gln Pro Val Val Gln Phe Ala Ile Asn Gln  
180 185 190

Gly Lys Ala Tyr Ala Ile Asn Met Glu Gly Glu Ala Val Gly Ser Phe  
195 200 205

Ala Phe Ala Val Lys Lys Gly Ser Gly His Asp Asn Leu Ile Lys Glu  
210 215 220

Phe Asn Thr Ala Phe Ala Gln Met Lys Ser Asp Gly Thr Tyr Asn Asp  
225 230 235 240

Ile Met Asp Lys Trp Leu Gly Lys Asp Ala Thr Lys Thr Ser Gly Lys  
245 250 255

Ala Thr Gly Asn Ala Asn Glu Lys Ala Thr Pro Val Lys Pro Ser Tyr  
260 265 270

Lys Ile Val Ser Asp Ser Ser Phe Ala Pro Phe Glu Tyr Gln Asn Gly  
275 280 285

Lys Gly Lys Tyr Thr Gly Phe Asp Met Glu Leu Ile Thr Lys Ile Ala  
290 295 300

Lys Gln Gln Gly Phe Lys Leu Asp Ile Ser Asn Pro Gly Phe Asp Ala  
 305                   310                   315                   320  
 Ala Leu Asn Ala Val Gln Ser Gly Gln Ala Asp Gly Val Ile Ala Gly  
 325                   330                   335  
 Ala Thr Ile Thr Glu Ala Arg Gln Lys Ile Phe Asp Phe Ser Asp Pro  
 340                   345                   350  
 Tyr Tyr Thr Ser Ser Val Ile Leu Ala Val Lys Lys Gly Ser Asn Val  
 355                   360                   365  
 Lys Ser Tyr Gln Asp Leu Lys Gly Lys Thr Val Gly Ala Lys Asn Gly  
 370                   375                   380  
 Thr Ala Ser Tyr Thr Trp Leu Ser Asp His Ala Asp Lys Tyr Asn Tyr  
 385                   390                   395                   400  
 His Val Lys Ala Phe Asp Glu Ala Ser Thr Met Tyr Asp Ser Met Asn  
 405                   410                   415  
 Ser Gly Ser Ile Asp Ala Leu Met Asp Asp Glu Ala Val Leu Ala Tyr  
 420                   425                   430  
 Ala Ile Asn Gln Gly Arg Lys Phe Glu Thr Pro Ile Lys Gly Glu Lys  
 435                   440                   445  
 Ser Gly Asp Ile Gly Phe Ala Val Lys Lys Gly Ala Asn Pro Glu Leu  
 450                   455                   460  
 Ile Lys Met Phe Asn Asn Gly Leu Ala Ser Leu Lys Ser Gly Glu  
 465                   470                   475                   480  
 Tyr Asp Lys Leu Val Lys Lys Tyr Leu Ser Thr Ala Ser Thr Ser Ser  
 485                   490                   495  
 Asn Asp Lys Ala Ala Lys Pro Val Asp Glu Ser Thr Ile Leu Gly Leu  
 500                   505                   510  
 Ile Ser Asn Asn Tyr Lys Gln Leu Leu Ser Gly Ile Gly Thr Thr Leu  
 515                   520                   525  
 Ser Leu Thr Leu Ile Ser Phe Ala Ile Ala Met Val Ile Gly Ile Ile  
 530                   535                   540  
 Phe Gly Met Met Ser Val Ser Pro Ser Asn Thr Leu Arg Thr Ile Ser  
 545                   550                   555                   560  
 Met Ile Phe Val Asp Ile Val Arg Gly Ile Pro Leu Met Ile Val Ala  
 565                   570                   575  
 Ala Phe Ile Phe Trp Gly Ile Pro Asn Leu Ile Glu Ser Ile Thr Gly  
 580                   585                   590  
 His Gln Ser Pro Ile Asn Asp Phe Val Ala Ala Thr Ile Ala Leu Ser  
 595                   600                   605

Leu Asn Gly Gly Ala Tyr Ile Ala Glu Ile Val Arg Gly Gly Ile Glu  
610 615 620

Ala Val Pro Ser Gly Gln Met Glu Ala Ser Arg Ser Leu Gly Ile Ser  
625 630 635 640

Tyr Gly Lys Thr Met Gln Lys Val Ile Leu Pro Gln Ala Val Arg Leu  
645 650 655

Met Leu Pro Asn Phe Ile Asn Gln Phe Val Ile Ser Leu Lys Asp Thr  
660 665 670

Thr Ile Val Ser Ala Ile Gly Leu Val Glu Leu Phe Gln Thr Gly Lys  
675 680 685

Ser

<210> 77

<211> 149

<212> DNA

<213> Streptococcus agalactiae

<400> 77

ttggaaagggtt tacttattgc attgattccc atgtttgcgt ggggaagtat tggatttgtt 60  
agtaataaaa ttggaggcg tccaaatcaa caaacattg gaatgacttt aggagcattg 120  
ctattgcga ttatcgtatg tttattaa 149

<210> 78

<211> 49

<212> PRT

<213> Streptococcus agalactiae

<400> 78

Met Glu Gly Leu Leu Ile Ala Leu Ile Pro Met Phe Ala Trp Gly Ser  
1 5 10 15

Ile Gly Phe Val Ser Asn Lys Ile Gly Gly Arg Pro Asn Gln Gln Thr  
20 25 30

Phe Gly Met Thr Leu Gly Ala Leu Leu Phe Ala Ile Ile Val Cys Leu  
35 40 45

Phe

<210> 79

<211> 963

<212> DNA

<213> Streptococcus agalactiae

<400> 79

atgaatactacttataatac	attgagaaca	gataaagggtt	ataaaagtta	tgaggggtat	60
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attgtatgg cagatacaga	tacttgtgc	tacactttt	tactcaatga	agatgaaaca	180
gtttatgatg atgtacttt	ctacaattt	gatgataaat	attgggttgc	tagtcataaa	240
gctttggatt cttattttaga	caacatcaat	tttgactata	ccgtaacaga	tatttctgac	300
gagttataaaa tgctgcaaatt	tgaaggaaaga	tattcgggag	aaattgtca	gtcattttat	360
gaatatgata ttcaacact	taatttcgt	actttcgca	tagagatgga	cttcatcaaa	420
ggtgaggaaa ggttatcttgcgttagattt	ggttttctg	gagaatttg	ctatcaattt		480
ttcctaccat cttctatttt	tgctactttt	gttccggatg	tctgtgaagg	tatagcagag	540
tgtggggatg aacttgatag	atatttaagg	tttgaagtgg	gacaacccat	tactgatatt	600
tatcaacaag aagaatattt	tttatatgaa	ataggttatt	cttggaatct	agatttcaca	660
aaggaagaat ttagaggtcg	cgtatcttgcgttag	tttaggcaca	tcatgcgc	aacagttaaa	720
agtgttggat tctcaacgaa	ggaaaaactc	gttcaggaa	caccagtgt	atttgcgtac	780
caaattgttg gaaagatttt	ttggatagca	gacgagaaac	actttcgga	aaattaccta	840
ggtttgcgtga ttgttaacca	aacatatgct	cattcaggag	ttactttgt	aacagaagat	900
ggccaaattt tgaaaacaca	atcaagccct	tattgtatcc	cagaaagttg	gaacaaagaa	960
tga					963

<210> 80

<211> 320

<212> PRT

<213> Streptococcus agalactiae

<400> 80

Met Asn Thr Ile Tyr Asn Thr Leu Arg Thr Asp Lys Gly Tyr Lys Val  
 1 5 10 15

Tyr Glu Gly Tyr Leu Tyr Glu Ile Thr Gly Glu Glu Cys Glu Glu Ala  
                   20                  25                         30

Leu Asp Leu Val Ile Pro Lys Asn Ile Val Phe Ala Asp Thr Asp Thr  
 35 40 45

Cys Gly Tyr Thr Phe Leu Leu Asn Glu Asp Gly Thr Val Tyr Asp Asp  
50 55 60

Val Thr Phe Tyr Lys Phe Asp Asp Lys Tyr Trp Leu Ala Ser His Lys  
 65                   70                   75                   80

Ala Leu Asp Ser Tyr Leu Asp Asn Ile Asn Phe Asp Tyr Thr Val Thr  
85 90 95

Asp Ile Ser Asp Glu Tyr Lys Met Leu Gln Ile Glu Gly Arg Tyr Ser  
 100 105 110

Gly Glu Ile Ala Gln Ser Phe Tyr Glu Tyr Asp Ile Ser Thr Leu Asn  
115 120 125

Phe Arg Thr Leu Arg Ile Glu Met Asp Phe Ile Lys Gly Glu Glu Arg  
135 140

Leu Ser Trp Arg Arg Phe Gly Phe Ser Gly Glu Phe Gly Tyr Gln Phe

Phe Leu Pro Ser Ser Ile Phe Ala Thr Phe Val Ser Asp Val Cys Glu  
170 175

Gly Ile Ala Glu Cys Gly Asp Glu Leu Asp Arg Tyr Leu Arg Phe Glu  
 180 185 190  
 Val Gly Gin Pro Ile Thr Asp Ile Tyr Gln Gln Glu Glu Tyr Ser Leu  
 195 200 205  
 Tyr Glu Ile Gly Tyr Ser Trp Asn Leu Asp Phe Thr Lys Glu Glu Phe  
 210 215 220  
 Arg Gly Arg Asp Ser Leu Leu Glu His Ile Arg Ser Ala Thr Val Lys  
 225 230 235 240  
 Ser Val Gly Phe Ser Thr Lys Glu Lys Leu Ala Ser Gly Thr Pro Val  
 245 250 255  
 Leu Phe Asp Asp Gln Ile Val Gly Lys Ile Phe Trp Ile Ala Asp Glu  
 260 265 270  
 Lys His Ser Ser Glu Asn Tyr Leu Gly Leu Met Ile Val Asn Gln Thr  
 275 280 285  
 Tyr Ala His Ser Gly Val Thr Phe Val Thr Glu Asp Gly Gln Ile Leu  
 290 295 300  
 Lys Thr Gln Ser Ser Pro Tyr Cys Ile Pro Glu Ser Trp Asn Lys Glu  
 305 310 315 320

<210> 81  
 <211> 702  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 81  
 atggagtag taatttagaga tattcgtaag cggtttcagg aaacagaggt cttgagagga 60  
 gcaagttacc gattttatttc aggtaaaata acaggggtct taggttaggaa tggtgcgtgg 120  
 aaaacaacctt tatattaatat actttatggg gatcttcgcag ctgacaacgg gaccatttgt 180  
 ttattgaagg ataatcacga gtatcccttt accgataagg atattggat ttttttattcc 240  
 gaaaactacc ttccagaatt ttaaacaggg tatgaatttg taaaattttt catggattta 300  
 catccttcag atgattnaat gacaatagat gattatttag attttatggaa aataggacaa 360  
 acagagcgtc atagaattat caaaggatat tctgatggaa tgaagagtaga gctctcatta 420  
 atttgcctga tgatttctaa gccaaaagta attttactag atgagccact gactgcagtt 480  
 gatgttgtat caagtattgc aataaaaacgc cttttgttgg aattaagtga ggatcatatt 540  
 attatattat caactcatat aatggcctta gcagaagatc tatgtgatat tgtggctgta 600  
 tttagacaaag gaaaactcca aacatttagat attgatcgta aacatgaaca attcgaagag 660  
 cgtcttc aagtgttggaa gggagatgaa tatgacaagt aa 702

<210> 82  
 <211> 233  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 82  
 Met Glu Leu Val Ile Arg Asp Ile Arg Lys Arg Phe Gln Glu Thr Glu  
 1 5 10 15  
 Val Leu Arg Gly Ala Ser Tyr Arg Phe Tyr Ser Gly Lys Ile Thr Gly  
 20 25 30  
 Val Leu Gly Arg Asn Gly Ala Gly Lys Thr Thr Leu Phe Asn Ile Leu  
 35 40 45  
 Tyr Gly Asp Leu Ala Ala Asp Asn Gly Thr Ile Cys Leu Leu Lys Asp  
 50 55 60  
 Asn His Glu Tyr Pro Leu Thr Asp Lys Asp Ile Gly Ile Val Tyr Ser  
 65 70 75 80  
 Glu Asn Tyr Leu Pro Glu Phe Leu Thr Gly Tyr Glu Phe Val Lys Phe  
 85 90 95  
 Tyr Met Asp Leu His Pro Ser Asp Asp Leu Met Thr Ile Asp Asp Tyr  
 100 105 110  
 Leu Asp Phe Met Glu Ile Gly Gln Thr Glu Arg His Arg Ile Ile Lys  
 115 120 125  
 Gly Tyr Ser Asp Gly Met Lys Ser Lys Leu Ser Leu Ile Cys Leu Met  
 130 135 140  
 Ile Ser Lys Pro Lys Val Ile Leu Leu Asp Glu Pro Leu Thr Ala Val  
 145 150 155 160  
 Asp Val Val Ser Ser Ile Ala Ile Lys Arg Leu Leu Leu Glu Leu Ser  
 165 170 175  
 Glu Asp His Ile Ile Leu Ser Thr His Ile Met Ala Leu Ala Glu  
 180 185 190  
 Asp Leu Cys Asp Ile Val Ala Val Leu Asp Lys Gly Lys Leu Gln Thr  
 195 200 205  
 Leu Asp Ile Asp Arg Lys His Glu Gln Phe Glu Glu Arg Leu Leu Gln  
 210 215 220  
 Val Leu Lys Gly Asp Glu Tyr Asp Lys  
 225 230

<210> 83  
 <211> 774  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 83  
 ttgttatga gatataaaaa tggaaatttt gaagccttgc caagacctcg aaaacctgaa 60  
 ggtgtggata aaaaatccgc ttatattgtt ggttctggtt tagcaggatt agctgccgct 120

gtcttttaa tacgtgacgg tcaaattggat ggtcaacgta ttcatatttt tgaagaacta 180  
cctcttcgt gaggatcaact tgacgggtgc aaacgacctg atatcggtt tctaaccgcgt 240  
ggtggtcgtg aaatggaaaa tcacttcgaa tgtatgtggg atatgtaccg ttccatcccc 300  
tctctcgaag ttccagatgc ttcttatcta gatgaattt attggcttga caaggatgt 360  
cccaattcat ctaactgtcg cctcattcat aaacaggaga atcgcttaga atctgtatgg 420  
gattttacac tcggaacaca ttccaaagag ttagttaagc tagtcatgga gactgaagag 480  
tcttaggtg ctaagacgt tgaagaagtt ttttcaaaag aatttttga aagtaattt 540  
tggacttatt gggctactat gtttgcctt gagaatggc attcagcgt taaaatgcgt 600  
cgatatgcta tgcgctttat ccatacatatt ggtggctgc ctgatttcac ttcattaaaa 660  
tttaataaat ataataataa tgattctatg gtgaaaccaa tcatacgtta ttttagagtct 720  
cataatgttag atgttcaatt tgatagcaag gtaactaata tctccgtaga cttt 774

<210> 84

<211> 258

<212> PRT

<213> Streptococcus agalactiae

<400> 84

Met Phe Met Arg Tyr Thr Asn Gly Asn Phe Glu Ala Phe Ala Arg Pro  
1 5 10 15

Arg Lys Pro Glu Gly Val Asp Lys Lys Ser Ala Tyr Ile Val Gly Ser  
20 25 30

Gly Leu Ala Gly Leu Ala Ala Val Phe Leu Ile Arg Asp Gly Gln  
35 40 45

Met Asp Gly Gln Arg Ile His Ile Phe Glu Leu Pro Leu Ser Gly  
50 55 60

Gly Ser Leu Asp Gly Val Lys Arg Pro Asp Ile Gly Phe Val Thr Arg  
65 70 75 80

Gly Gly Arg Glu Met Glu Asn His Phe Glu Cys Met Trp Asp Met Tyr  
85 90 95

Arg Ser Ile Pro Ser Leu Glu Val Pro Asp Ala Ser Tyr Leu Asp Glu  
100 105 110

Phe Tyr Trp Leu Asp Lys Asp Asp Pro Asn Ser Ser Asn Cys Arg Leu  
115 120 125

Ile His Lys Gln Gly Asn Arg Leu Glu Ser Asp Gly Asp Phe Thr Leu  
130 135 140

Gly Thr His Ser Lys Glu Leu Val Lys Leu Val Met Glu Thr Glu Glu  
145 150 155 160

Ser Leu Gly Ala Lys Thr Ile Glu Glu Val Phe Ser Lys Glu Phe Phe  
165 170 175

Glu Ser Asn Phe Trp Thr Tyr Trp Ala Thr Met Phe Ala Phe Glu Lys  
180 185 190

Trp His Ser Ala Ile Glu Met Arg Arg Tyr Ala Met Arg Phe Ile His  
195 200 205

His	Ile	Gly	Gly	Leu	Pro	Asp	Phe	Thr	Ser	Leu	Lys	Phe	Asn	Lys	Tyr
210						215								220	
Asn	Gln	Tyr	Asp	Ser	Met	Val	Lys	Pro	Ile	Ile	Ser	Tyr	Leu	Glu	Ser
225						230					235				240
His	Asn	Val	Asp	Val	Gln	Phe	Asp	Ser	Lys	Val	Thr	Asn	Ile	Ser	Val
245									250						255

Asp Phe

<210> 85  
<211> 903  
<212> DNA  
<213> *Streptococcus agalactiae*

<400> 85  
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actatcttag gtaagtccta tatcaataaa gtaacagctc acaaaaataaa actctataac 180  
tctcgaaatga ctctactat ttttaattca ggatccagtg ctactcaaga acgatttaac 240  
agcatgttag cacagctaa ccaaattgggaa gaaaaacata gcgtttaaa gtttaactgtc 300  
aaaaaaagaca atagcattat ctacaatggaa caaatttagcg gcaatgacca caaaccctac 360  
attgtcattt gatttggaaaa taatgaagat gtttatagta acataaaaaa acaaacaaaaa 420  
tggctacaga ttgctatgaa tgatcttcag aagaaaatata aattttaaacg tttaaacgct 480  
atcggtcatt caaatggtggtt cttatcatgg actatttcc tagaagatta ttacgactct 540  
gatgaatttg atatgaaatc attgttaaca atggaaacac cttttaactt tgaagaaagt 600  
aacacctcaa atcataactca aatgcttaaa gatttaatca gtaataaagg aaatattcca 660  
tcaagtctca tggtatacaa tttggcagga actaattcat atgatggtga taaaattgtt 720  
ccatttgcta gtgtggagac tggtaaatat attttccaag aaaccgctaa acactataacc 780  
caactaacag taactggtaa taatgctaca cattctgact tgcctgataa tcctgaagtt 840  
atccaaatatg tcgcagaaaa aattcttaaa aatgagaaaa gtaaattacc aaaacctcac 900  
taa 903

<210> 86  
<211> 300  
<212> PRT  
<213> *Streptococcus agalactiae*

<400> 86  
Met Leu Ala Ser Leu Phe Ile Val Arg Leu Ser Lys Ser Leu Ser Leu  
1 5 10 15

Arg Arg Ser Asn Met Lys Lys Leu Leu Arg Trp Leu Pro Pro Val Leu  
20 25 30

Phe Ile Ile Ile Leu Ile Gly Met Thr Ile Leu Gly Lys Ser Tyr Ile  
35 40 45

Asn Lys Val Thr Ala His Lys Ile Lys Leu Tyr Asn Ser Arg Met Thr  
50 55 60

Pro Thr Ile Leu Ile Ser Gly Ser Ser Ala Thr Gln Glu Arg Phe Asn  
 65 70 75 80  
 Ser Met Leu Ala Gln Leu Asn Gln Met Gly Glu Lys His Ser Val Leu  
 85 90 95  
 Lys Leu Thr Val Lys Lys Asp Asn Ser Ile Ile Tyr Asn Gly Gln Ile  
 100 105 110  
 Ser Gly Asn Asp His Lys Pro Tyr Ile Val Ile Gly Phe Glu Asn Asn  
 115 120 125  
 Glu Asp Gly Tyr Ser Asn Ile Lys Lys Gln Thr Lys Trp Leu Gln Ile  
 130 135 140  
 Ala Met Asn Asp Leu Gln Lys Lys Tyr Lys Phe Lys Arg Phe Asn Ala  
 145 150 155 160  
 Ile Gly His Ser Asn Gly Gly Leu Ser Trp Thr Ile Phe Leu Glu Asp  
 165 170 175  
 Tyr Tyr Asp Ser Asp Glu Phe Asp Met Lys Ser Leu Leu Thr Met Gly  
 180 185 190  
 Thr Pro Phe Asn Phe Glu Glu Ser Asn Thr Ser Asn His Thr Gln Met  
 195 200 205  
 Leu Lys Asp Leu Ile Ser Asn Lys Gly Asn Ile Pro Ser Ser Leu Met  
 210 215 220  
 Val Tyr Asn Leu Ala Gly Thr Asn Ser Tyr Asp Gly Asp Lys Ile Val  
 225 230 235 240  
 Pro Phe Ala Ser Val Glu Thr Gly Lys Tyr Ile Phe Gln Glu Thr Ala  
 245 250 255  
 Lys His Tyr Thr Gln Leu Thr Val Thr Gly Asn Asn Ala Thr His Ser  
 260 265 270  
 Asp Leu Pro Asp Asn Pro Glu Val Ile Gln Tyr Val Ala Glu Lys Ile  
 275 280 285  
 Leu Lys Asn Glu Lys Gly Lys Leu Pro Lys Pro His  
 290 295 300

<210> 87  
 <211> 912  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 87  
 ttgaaatttag gtattacaac attcggagag acaacaatcc ttgaagaaac aaaccaaagc 60  
 tattcacatc ctgagaggat tcgccaatta gttgctgaga ttgaactagc tgatcaagtt 120  
 ggtttagatg tatatggtat tggagagcac catcgtgaag atttgcggc ctctgcaccc 180  
 gaaattatcc tagcagcagg agcggttata actaataata tccgtttatc tagtgcatgt 240

acgattctct cttecaatga tcctattcgc gtctatcagc aatttcaac gattgacgca 300  
 ctttcaaatg gtagagcaga aattatggca gggcgtggt cctttattga gtctttcca 360  
 ttgttggat acgatttagc ggattatgtat gatttattta ataaaaaaat ggatatgtt 420  
 ttagcaatta actcagcgac aaatctcgat tggaaaggc atttgacaca aacagttat 480  
 gagcgaaccaa tttatccaag agcattacaa agacagtat caatatgggt ggcaacagga 540  
 ggaaatgtt attctacaat tcgtattgca gaacaaggt tgccaattgt ttatgcaact 600  
 attgggtggaa atcccaaagc cttcgtcaa ttggtccata ttataaaga agttggtaag 660  
 tccgtaatgg acacaaaacca ggaacaacta aaagttgctg ctcaactctg gggatggatt 720  
 gaagaggata atcaaaccgc tattgaccgt tatttttcc ctacgaaaca gaccgtcgat 780  
 aatattgcta agggacgccc tcattggct gaaatgacta aagagcagta tttacgttca 840  
 ataggtccag aaggtgctat tttttagga aatcctgaag tggttcaca taattata 900  
 ggactttgggt ga 912

<210> 88  
 <211> 303  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 88  
 Met Lys Leu Gly Ile Thr Thr Phe Gly Glu Thr Thr Ile Leu Glu Glu  
 1 5 10 15

Thr Asn Gln Ser Tyr Ser His Pro Glu Arg Ile Arg Gln Leu Val Ala  
 20 25 30

Glu Ile Glu Leu Ala Asp Gln Val Gly Leu Asp Val Tyr Gly Ile Gly  
 35 40 45

Glu His His Arg Glu Asp Phe Ala Val Ser Ala Pro Glu Ile Ile Leu  
 50 55 60

Ala Ala Gly Ala Val Arg Thr Asn Asn Ile Arg Leu Ser Ser Ala Val  
 65 70 75 80

Thr Ile Leu Ser Ser Asn Asp Pro Ile Arg Val Tyr Gln Gln Phe Ser  
 85 90 95

Thr Ile Asp Ala Leu Ser Asn Gly Arg Ala Glu Ile Met Ala Gly Arg  
 100 105 110

Gly Ser Phe Ile Glu Ser Phe Pro Leu Phe Gly Tyr Asp Leu Ala Asp  
 115 120 125

Tyr Asp Asp Leu Phe Asn Glu Lys Met Asp Met Leu Leu Ala Ile Asn  
 130 135 140

Ser Ala Thr Asn Leu Asp Trp Lys Gly His Leu Thr Gln Thr Val Asn  
 145 150 160

Glu Arg Pro Ile Tyr Pro Arg Ala Leu Gln Arg Gln Leu Ser Ile Trp  
 165 170 175

Val Ala Thr Gly Gly Asn Val Asp Ser Thr Ile Arg Ile Ala Glu Gln  
 180 185 190

Gly Leu Pro Ile Val Tyr Ala Thr Ile Gly Gly Asn Pro Lys Ala Phe

195	200	205
Arg Gln Leu Val His Ile Tyr Lys Glu Val Gly Lys Ser Val Met Asp		
210	215	220
Thr Asn Gln Glu Gln Leu Lys Val Ala Ala His Ser Trp Gly Trp Ile		
225	230	235
Glu Glu Asp Asn Gln Thr Ala Ile Asp Arg Tyr Phe Phe Pro Thr Lys		
245	250	255
Gln Thr Val Asp Asn Ile Ala Lys Gly Arg Pro His Trp Ser Glu Met		
260	265	270
Thr Lys Glu Gln Tyr Leu Arg Ser Ile Gly Pro Glu Gly Ala Ile Phe		
275	280	285
Val Gly Asn Pro Glu Val Val Ala His Lys Ile Ile Gly Leu Trp		
290	295	300

<210> 89  
 <211> 693  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 89  
 atgatagagt ggattcaaac acatttacca aatgtatatac aaatgggttg ggaagggtgc 60  
 tacggctggc agacagctat tgtacaaacc ctttatatga cttttggtc gttccttatt 120  
 ggaggttaa tggattgtt aggaggtta ttccttggtt taactagtcc tagaggagtt 180  
 attgctaata aatttagtatt tggagttta gataaaggtg ttctctttt tagagctctg 240  
 cccttcatta ttcttcttcgc tttgattgcg ccagtaactc gcgttaattgt aggaacaaca 300  
 cttgggtcac cagcagctt ggtacctt tctttggcag tttccatt tttgctcg 360  
 caagtcaag ttgttttagc tgaacttgat ggtggagttt tgaggctgc acaagctca 420  
 ggtggAACAC tttggatatt tattttagtt tatcttcgtg aaggtctacc agatttaatt 480  
 cgagtatcaa cggttacttt gattttta gtaggtaaaa cagctatggc tggcgctatt 540  
 ggtcaggag gattgggttc tggtctatt actaaaggat ataactattc tcgtgatgat 600  
 attacattttag tagcactat tctgattttt ttattatcca atttttaggt 660  
 gatttttaa cacgtcgctt gagtataaaa taa 693

<210> 90  
 <211> 230  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 90  
 Met Ile Glu Trp Ile Gln Thr His Leu Pro Asn Val Tyr Gln Met Gly  
 1 5 10 15

Trp Glu Gly Ala Tyr Gly Trp Gln Thr Ala Ile Val Gln Thr Leu Tyr  
 20 25 30

Met Thr Phe Trp Ser Phe Leu Ile Gly Gly Leu Met Gly Leu Leu Gly  
 35 40 45

Gly Leu Phe Leu Val Leu Thr Ser Pro Arg Gly Val Ile Ala Asn Lys  
 50 55 60  
 Leu Val Phe Gly Val Leu Asp Lys Val Val Ser Val Phe Arg Ala Leu  
 65 70 75 80  
 Pro Phe Ile Ile Leu Leu Ala Leu Ile Ala Pro Val Thr Arg Val Ile  
 85 90 95  
 Val Gly Thr Thr Leu Gly Ser Pro Ala Ala Leu Val Pro Leu Ser Leu  
 100 105 110  
 Ala Val Phe Pro Phe Phe Ala Arg Gln Val Gln Val Val Leu Ala Glu  
 115 120 125  
 Leu Asp Gly Gly Val Ile Glu Ala Ala Gln Ala Ser Gly Gly Thr Leu  
 130 135 140  
 Trp Asp Ile Ile Val Val Tyr Leu Arg Glu Gly Leu Pro Asp Leu Ile  
 145 150 155 160  
 Arg Val Ser Thr Val Thr Leu Ile Ser Leu Val Gly Glu Thr Ala Met  
 165 170 175  
 Ala Gly Ala Ile Gly Ala Gly Gly Leu Gly Ser Val Ala Ile Thr Lys  
 180 185 190  
 Gly Tyr Asn Tyr Ser Arg Asp Asp Ile Thr Leu Val Ala Thr Ile Leu  
 195 200 205  
 Ile Leu Leu Leu Ile Phe Phe Ile Gln Phe Leu Gly Asp Phe Leu Thr  
 210 215 220  
 Arg Arg Leu Ser His Lys  
 225 230

<210> 91  
 <211> 759  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 91  
 ttggcagttt gttttcatga agtattttgt tgggattctg ctttttttat tatgatttttc 60  
 aatattccat tgctccttct ttgctacttt ggcttagtta aacaaacacctt tttaaaaactt 120  
 gtctatggtt cttggatttt tcctgtttttt attaagttaa cacaagggtt accaacttttg 180  
 acccacaact cactcctcgcc agcactttt ggaggtgtta ttgttaggttgggg 240  
 attgtttttt ggagcgactc ttcaactggt ggaacgggga ttatcattca attcttagga 300  
 aaataatactc ctataagcct tggacaaggg gtttatattga ttgtatggact ttttacattt 360  
 gttggtttcc tagcttttga cagtgatacg gttatgtttt ctattattgg gttgataact 420  
 attagttata ttataatgc tatccaaact ggatttacaa ccttaagcac tgtcttaatc 480  
 gtttctcaag agcaccaaaa aattaagaca tatatcaata ctgtcgcaga tagaggagta 540  
 acagaaattc ccgtttaaagg gggatattct ggaactaatc aaatcatgct tatgacaact 600  
 attgctggtt atgagtttgc taaattacaa gaggcaatag cagaaattga cgaaacagcc 660  
 ttcataaacag taactccaac atcacaagct tctggacgtt gatttagtct tcaaaaaat 720  
 catggacgtc ttgatgaaga cattttatg ccaatgtaa 759

<210> 92  
<211> 252  
<212> PRT  
<213> Streptococcus agalactiae

<400> 92  
Met Ala Val Ser Phe His Glu Val Phe Gly Trp Asp Ser Ala Phe Phe  
1 5 10 15  
Ile Met Ile Ile Asn Ile Pro Leu Leu Leu Cys Tyr Phe Gly Leu  
20 25 30  
Gly Lys Gln Thr Phe Leu Lys Thr Val Tyr Gly Ser Trp Ile Phe Pro  
35 40 45  
Val Phe Ile Lys Leu Thr Gln Ser Val Pro Thr Leu Thr His Asn Ser  
50 55 60  
Leu Leu Ala Ala Leu Phe Gly Gly Val Ile Val Gly Cys Gly Leu Gly  
65 70 75 80  
Ile Val Phe Trp Ser Asp Ser Ser Thr Gly Gly Thr Gly Ile Ile Ile  
85 90 95  
Gln Phe Leu Gly Lys Tyr Thr Pro Ile Ser Leu Gly Gln Gly Val Ile  
100 105 110  
Leu Ile Asp Gly Leu Val Thr Ile Val Gly Phe Leu Ala Phe Asp Ser  
115 120 125  
Asp Thr Val Met Phe Ser Ile Ile Gly Leu Ile Thr Ile Ser Tyr Ile  
130 135 140  
Ile Asn Ala Ile Gln Thr Gly Phe Thr Thr Leu Ser Thr Val Leu Ile  
145 150 155 160  
Val Ser Gln Glu His Gln Lys Ile Lys Thr Tyr Ile Asn Thr Val Ala  
165 170 175  
Asp Arg Gly Val Thr Glu Ile Pro Val Lys Gly Gly Tyr Ser Gly Thr  
180 185 190  
Asn Gln Ile Met Leu Met Thr Thr Ile Ala Gly Tyr Glu Phe Ala Lys  
195 200 205  
Leu Gln Glu Ala Ile Ala Glu Ile Asp Glu Thr Ala Phe Ile Thr Val  
210 215 220  
Thr Pro Thr Ser Gln Ala Ser Gly Arg Gly Phe Ser Leu Gln Lys Asn  
225 230 235 240  
His Gly Arg Leu Asp Glu Asp Ile Leu Met Pro Met  
245 250

<210> 93  
<211> 549  
<212> DNA  
<213> Streptococcus agalactiae

<400> 93  
atgaaagaaa aacagtcaa aaggcttatt tatatactac tgattgttcc cattatcttt 60  
ataagtgttt ttacatacag tattagccag ccttctaaac tacttccacc aaaagaatta 120  
gttattctaa gtccaaatacg tcaagccatt ttaacagaa cgattccagc ttttgaggaa 180  
aaatacggta taaaagttaa gcttattcaa ggtgggacag ggcaactaat agatagatta 240  
agtaaggagg gtaagcaggta gaaggcggat atttcttg gaggaaatta tacgcaattt 300  
gaaagtata aggcattgtt tgagtcttac gtatcaaaga atgttcatac ttttattcca 360  
gactatatcc atccgagtga tacggcgaca ccttatacta taaatggag tgtcttgatt 420  
gtaaataacg aatttagctaa gggacttacc atcaagagtt atgaagattt attacagcct 480  
tccttaaaag gtaaaaattgc ctttgcagat cctctagagt cgacctgcaa gcatgcaagc 540  
ttggcgtaa 549

<210> 94  
<211> 182  
<212> PRT  
<213> Streptococcus agalactiae

<400> 94  
Met Lys Glu Lys Gln Ser Lys Arg Leu Ile Tyr Ile Leu Leu Ile Val  
1 5 10 15  
Pro Ile Ile Phe Ile Ser Val Phe Thr Tyr Ser Ile Ser Gln Pro Ser  
20 25 30  
Lys Leu Leu Pro Pro Lys Glu Leu Val Ile Leu Ser Pro Asn Ser Gln  
35 40 45  
Ala Ile Leu Thr Gly Thr Ile Pro Ala Phe Glu Glu Lys Tyr Gly Ile  
50 55 60  
Lys Val Lys Leu Ile Gln Gly Gly Thr Gly Gln Leu Ile Asp Arg Leu  
65 70 75 80  
Ser Lys Glu Gly Lys Gln Leu Lys Ala Asp Ile Phe Phe Gly Gly Asn  
85 90 95  
Tyr Thr Gln Phe Glu Ser His Lys Ala Leu Phe Glu Ser Tyr Val Ser  
100 105 110  
Lys Asn Val His Thr Val Ile Pro Asp Tyr Ile His Pro Ser Asp Thr  
115 120 125  
Ala Thr Pro Tyr Thr Ile Asn Gly Ser Val Leu Ile Val Asn Asn Glu  
130 135 140  
Leu Ala Lys Gly Leu Thr Ile Lys Ser Tyr Glu Asp Leu Leu Gln Pro  
145 150 155 160  
Ser Leu Lys Gly Lys Ile Ala Phe Ala Asp Pro Leu Glu Ser Thr Cys  
165 170 175

Lys His Ala Ser Leu Ala  
180

<210> 95  
<211> 368  
<212> DNA  
<213> Streptococcus agalactiae

<400> 95  
cctccatataca aatgatgaca aacgtgagag gtacatggaa caaatgctct ttaaaaattga 60  
aaatgcacc tggcagcgtg tggtaagagc actttatcgtaaatacaata aggaattttt 120  
tacatatcca gcccacaaa caaaccacca cgctttgaa tcaggattgg catatcacac 180  
ggcaacaatg gttcgtttg cagatagtat cggagatatc tatccagaac ttaataaaaag 240  
tttgatgttt gctggattat tgctacatga ttttagccaag gtcataagatc tatcgggtcc 300  
tgataataca gaatatacta ttcgaggtaa tcttatcggt catatccac ttattgtga 360  
ggaattaa 368

<210> 96  
<211> 122  
<212> PRT  
<213> Streptococcus agalactiae

<400> 96  
Leu Leu Ser Asn Asp Asp Lys Arg Glu Arg Tyr Met Glu Gln Met Leu  
1 5 10 15

Phe Lys Ile Glu Asn Ala Thr Trp Gln Arg Val Val Arg Ala Leu Tyr  
20 25 30

Arg Lys Tyr Asn Lys Glu Phe Phe Thr Tyr Pro Ala Ala Lys Thr Asn  
35 40 45

His His Ala Phe Glu Ser Gly Leu Ala Tyr His Thr Ala Thr Met Val  
50 55 60

Arg Leu Ala Asp Ser Ile Gly Asp Ile Tyr Pro Glu Leu Asn Lys Ser  
65 70 75 80

Leu Met Phe Ala Gly Ile Met Leu His Asp Leu Ala Lys Val Ile Glu  
85 90 95

Leu Ser Gly Pro Asp Asn Thr Glu Tyr Thr Ile Arg Gly Asn Leu Ile  
100 105 110

Gly His Ile Ser Leu Ile Asp Glu Glu Leu  
115 120

<210> 97  
<211> 753  
<212> DNA  
<213> Streptococcus agalactiae

<400> 97

atgaaaaaaaaataaaattatccgattcagtttagttgggtttctacttgcgatactatgc 60  
tttagtcttttgctttttaaggcctaacaatcatcatctcaaaagttgagg 120  
aatgaggataaaaaaaagacatcctctcaaaaaagaataagaaattacgattaccagct 180  
gtatcatcaa aagattggaa cttgattttgtcaatcgtaaccataaaca tgaagaatta 240  
agtccagatgtggtcctgttgaaaatattatattggataaacgttattacgaagcaagct 300  
actcaagtttttagaggctcgtagcaattgattcacagaaacatttaatttcgggttat 360  
cgtatgttgctatcagaagaagggttcatttctatgttactcaaga gatgactagt 420  
aaccctaatttgacgaggggacaacgagaa aagttggtaaaacttactctcagcctgca 480  
ggtagtgcgtg aacaccagac tggattagcgatggatatgatgtactgtaga ttctttgaat 540  
gagagcgatcctagagtagt cagtcagttgaaaaagatagctccacaata tggtttgc 600  
ttacgtttccggatggtaaaacagcagaaacagggtaggttatgaaga ttggcattac 660  
cgctatgttg gggtagatc tgcaaaatatatgtcaaacatcattaacattagaagaa 720  
tacataaacttattaaagagaataaccaa tga 753

<210> 98

<211> 250

<212> PRT

<213> Streptococcus agalactiae

<400> 98

Met Lys Lys Asn Lys Ile Ile Arg Phe Ser Leu Val Gly Val Leu Leu  
1 5 10 15

Ala Ile Leu Cys Phe Ser Leu Phe Ala Leu Leu Lys Pro Asn Ser Gln  
20 25 30

Gln Ser Ser Ser Gln Lys Leu Arg Asn Glu Asp Ile Lys Lys Thr Ser  
35 40 45

Ser Gln Lys Arg Asn Lys Lys Leu Arg Leu Pro Ala Val Ser Ser Lys  
50 55 60

Asp Trp Asn Leu Ile Leu Val Asn Arg Asp His Lys His Glu Glu Leu  
65 70 75 80

Ser Pro Asp Val Val Pro Val Glu Asn Ile Tyr Leu Asp Lys Arg Ile  
85 90 95

Thr Lys Gln Ala Thr Gln Phe Leu Glu Ala Ala Arg Ala Ile Asp Ser  
100 105 110

Arg Glu His Leu Ile Ser Gly Tyr Arg Ser Val Ala Tyr Gln Glu Lys  
115 120 125

Leu Phe Asn Ser Tyr Val Thr Gln Glu Met Thr Ser Asn Pro Asn Leu  
130 135 140

Thr Arg Gly Gln Ala Glu Lys Leu Val Lys Thr Tyr Ser Gln Pro Ala  
145 150 155 160

Gly Ala Ser Glu His Gln Thr Gly Leu Ala Met Asp Met Ser Thr Val  
165 170 175

Asp Ser Leu Asn Glu Ser Asp Pro Arg Val Val Ser Gln Leu Lys Lys

180	185	190
Ile Ala Pro Gln Tyr Gly Phe Val Leu Arg Phe Pro Asp Gly Lys Thr		
195	200	205
Ala Glu Thr Gly Val Gly Tyr Glu Asp Trp His Tyr Arg Tyr Val Gly		
210	215	220
Val Glu Ser Ala Lys Tyr Met Val Lys His His Leu Thr Leu Glu		
225	230	235
Tyr Ile Thr Leu Leu Lys Glu Asn Asn Gln		
245	250	

<210> 99  
 <211> 351  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 99  
 ctgttatgtg gatttcttcc atcaattcct gtgtctaatt ccggggggta tggtataata 60  
 acagttatga aaaataaaaa aatcttattt gggactggcc ttgcgtgggtg gggtttactg 120  
 gcagctgctg gttataccct aactaaaaaa gtaacagatt ataaaacgtca gcaaattcact 180  
 cagacacctaa gagaacttt tagtcagatg ggtgataattc aggtatttta ttttaatgaa 240  
 tttgaatctg atattaaaat gaccagtggt ggtcttgct tggaaagatgg cagaatttcc 300  
 gaattcattt atcgtcaagg tgttcttgat tatgtggagg tgagcaaatg a 351

<210> 100  
 <211> 116  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 100  
 Leu Leu Cys Gly Phe Leu Pro Ser Ile Pro Val Ser Asn Ser Gly Gly  
 1 5 10 15

Tyr Gly Ile Ile Thr Val Met Lys Asn Lys Lys Ile Leu Phe Gly Thr  
 20 25 30

Gly Leu Ala Gly Val Gly Leu Leu Ala Ala Ala Gly Tyr Thr Leu Thr  
 35 40 45

Lys Lys Val Thr Asp Tyr Lys Arg Gln Gln Ile Thr Gln Thr Leu Arg  
 50 55 60

Glu Leu Phe Ser Gln Met Gly Asp Ile Gln Val Phe Tyr Phe Asn Glu  
 65 70 75 80

Phe Glu Ser Asp Ile Lys Met Thr Ser Gly Gly Leu Val Leu Glu Asp  
 85 90 95

Gly Arg Ile Phe Glu Phe Ile Tyr Arg Gln Gly Val Leu Asp Tyr Val  
 100 105 110

Glu Val Ser Lys  
115

<210> 101  
<211> 310  
<212> DNA  
<213> Streptococcus agalactiae

<400> 101  
atgtatcaa ctcagacaaa taaggaaaa tttgtttat tttgaaatt atttatccca 60  
gtattgattt atcaatttgc taattttca gctacttttta ttgattcggt tatgactgga 120  
cagtagatc agctacattt ggcagggtgt tcaactgcta gtaattttatg gactccgtt 180  
ttcgctttat tagtaggtat gatttcagca ttagtaccag tagttggtca acatgggt 240  
agaggaaata aagaacaaat tcgcacagaa tttcatcaat ttctatattt aggttgata 300  
ctgtccttaa 310

<210> 102  
<211> 103  
<212> PRT  
<213> Streptococcus agalactiae

<400> 102  
Met Tyr Gln Thr Gln Thr Asn Lys Glu Lys Phe Val Leu Phe Leu Lys  
1 5 10 15

Leu Phe Ile Pro Val Leu Ile Tyr Gln Phe Ala Asn Phe Ser Ala Thr  
20 25 30

Phe Ile Asp Ser Val Met Thr Gly Gln Tyr Ser Gln Leu His Leu Ala  
35 40 45

Gly Val Ser Thr Ala Ser Asn Leu Trp Thr Pro Phe Phe Ala Leu Leu  
50 55 60

Val Gly Met Ile Ser Ala Leu Val Pro Val Val Gly Gln His Leu Gly  
65 70 75 80

Arg Gly Asn Lys Glu Gln Ile Arg Thr Glu Phe His Gln Phe Leu Tyr  
85 90 95

Leu Gly Leu Ile Leu Ser Leu  
100

<210> 103  
<211> 1098  
<212> DNA  
<213> Streptococcus agalactiae

<400> 103  
ctgctcttt tagctaactt ttctaatat tggataattt gtatggattt ttttagctaga 60  
atggagaaga tgatgcaga tgtttcatt ataggaagta gagggttgcc agctcgttac 120  
ggtgttttgg aaacttttgtt ttcagaattt attaatcatc aaaaaagttc cgacataaaa 180

taccatgttgcatgccttag tgataaaagaa catcataactc attttaactt tgctgacgct 240  
 gattgtttactataatcc tccccatta gggccagcac gtgtgattgc ttatgatatt 300  
 atggccatta attatgcct tgacttggtt aagacacatg attaaaaaga gcctatttt 360  
 tatatttttag gaaatacaat tggcctt atttggcatt ttgccaataa aatacataaa 420  
 gtcggtggct tattgtatgt taatccggat ggtttagagt ggaagcgatc aaagtggct 480  
 cgtcccacac agcgttattt aaaatacgcc gaaaaatgtt tgactaaaaa tgcagaccta 540  
 attatttctg ataataattgg tattgaaaat tacattcaat ctacctactc taatgtgaag 600  
 acaagggttca ttgcttacgg tacagagatt aattctagga aattatcgatc agatgatcca 660  
 cgtgtcaaaccgtttaaaaatggaaat attaagtcta agggttacta tctaattcgat 720  
 ggtcgatttgc tccctgaaaa caattatgaa acggcttata gggagttcat ggcttcagat 780  
 actaagcgtg atttagtttatctgttaac catcaaaaat acccctactt tgaaaatgg 840  
 tccttaaaga caaaccttca acaagataaa agagttaaat tttaggtac gctctatgaa 900  
 aaagatctgc tggattatgt tcgtcaacaa gccttgctt atattcatgg gcatgaagtt 960  
 ggcggtaacta atccaggact gcttggact tttagctaata ctgatttgaa tcttggctta 1020  
 gatggatttgc tcaacaaatc agtagcaggt ctctcaagtt tttactggac taaaaaagag 1080  
 ggggatttag ctaagctt 1098

<210> 104

<211> 366

<212> PRT

<213> Streptococcus agalactiae

<400> 104

Met	Leu	Phe	Leu	Ala	Asn	Phe	Ser	Asn	Leu	Trp	Tyr	Asn	Cys	Met	Asp
1														15	

Cys	Leu	Ala	Arg	Met	Glu	Lys	Met	Met	Gln	Asp	Val	Phe	Ile	Ile	Gly
														30	
				20				25							

Ser	Arg	Gly	Leu	Pro	Ala	Arg	Tyr	Gly	Gly	Phe	Glu	Thr	Phe	Val	Ser
															35
								40							45

Glu	Leu	Ile	Asn	His	Gln	Lys	Ser	Ser	Asp	Ile	Lys	Tyr	His	Val	Ala
															50
								55							60

Cys	Leu	Ser	Asp	Lys	Glu	His	His	Thr	His	Phe	Asn	Phe	Ala	Asp	Ala
															65
								70							75

Asp	Cys	Phe	Thr	Ile	Asn	Pro	Pro	Gln	Leu	Gly	Pro	Ala	Arg	Val	Ile
															85
									90						95

Ala	Tyr	Asp	Ile	Met	Ala	Ile	Asn	Tyr	Ala	Leu	Asp	Leu	Val	Lys	Thr
															100
										105					110

His	Asp	Leu	Lys	Glu	Pro	Ile	Phe	Tyr	Ile	Leu	Gly	Asn	Thr	Ile	Gly
															115
									120						125

Ala	Phe	Ile	Trp	His	Phe	Ala	Asn	Lys	Ile	His	Lys	Val	Gly	Gly	Leu
															130
									135						140

Leu	Tyr	Val	Asn	Pro	Asp	Gly	Leu	Glu	Trp	Lys	Arg	Ser	Lys	Trp	Ser
															145
									150			155			160

Arg	Pro	Thr	Gln	Arg	Tyr	Leu	Lys	Tyr	Ala	Glu	Lys	Cys	Met	Thr	Lys
															165
									170						175

Asn Ala Asp Leu Ile Ile Ser Asp Asn Ile Gly Ile Glu Asn Tyr Ile  
 180 185 190  
 Gln Ser Thr Tyr Ser Asn Val Lys Thr Arg Phe Ile Ala Tyr Gly Thr  
 195 200 205  
 Glu Ile Asn Ser Arg Lys Leu Ser Ser Asp Asp Pro Arg Val Lys Gln  
 210 215 220  
 Leu Phe Lys Lys Trp Asn Ile Lys Ser Lys Gly Tyr Tyr Leu Ile Val  
 225 230 235 240  
 Gly Arg Phe Val Pro Glu Asn Asn Tyr Glu Thr Ala Ile Arg Glu Phe  
 245 250 255  
 Met Ala Ser Asp Thr Lys Arg Asp Leu Val Ile Ile Cys Asn His Gln  
 260 265 270  
 Asn Asn Pro Tyr Phe Glu Lys Leu Ser Leu Lys Thr Asn Leu Gln Gln  
 275 280 285  
 Asp Lys Arg Val Lys Phe Val Gly Thr Leu Tyr Glu Lys Asp Leu Leu  
 290 295 300  
 Asp Tyr Val Arg Gln Gln Ala Phe Ala Tyr Ile His Gly His Glu Val  
 305 310 315 320  
 Gly Gly Thr Asn Pro Gly Leu Leu Glu Ala Leu Ala Asn Thr Asp Leu  
 325 330 335  
 Asn Leu Val Leu Asp Val Asp Phe Asn Lys Ser Val Ala Gly Leu Ser  
 340 345 350  
 Ser Phe Tyr Trp Thr Lys Lys Glu Gly Asp Leu Ala Lys Leu  
 355 360 365

<210> 105  
 <211> 546  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 105  
 ttgaggagta atatggtaaa gacagcagtt ttaatggcga catacaatgg cgaaaaattt 60  
 atatctgaac aacttgattc aattcgccaa cagacattaa aaccagatta tgtattattg 120  
 agggatgatt gttcaacgga tgaaacagtc aatgtcgta ataactatat cgcaaaacat 180  
 gagttagaag gctggaaaat tgtaaaaac gacaaaaact taggctggcg tttaaaatttt 240  
 cgtcaattac ttattgatgt gttagcctat gaggttgact atgtctttt tagtgatcaa 300  
 gatgatattt ggtatcttga taaaaacgaa cgacagtttgc ccattatgtc agataaccct 360  
 caaatttggg tttttagtgc agacgttgat atcaaaacga tgtctacaga agccagtgtt 420  
 ccacattttc taacttttc ttcttagtgc agaatcgtc agtaccccaa agtatatgtat 480  
 tatcaaacat tccgtccccgg atggaccatt gctatgaaga gagattttgc gcaagctatc 540  
 546  
 gcttga

<210> 106

<211> 181  
<212> PRT  
<213> Streptococcus agalactiae

<400> 106  
Met Arg Ser Asn Met Val Lys Thr Ala Val Leu Met Ala Thr Tyr Asn  
1 5 10 15  
Gly Glu Lys Phe Ile Ser Glu Gln Leu Asp Ser Ile Arg Gln Gln Thr  
20 25 30  
Leu Lys Pro Asp Tyr Val Leu Leu Arg Asp Asp Cys Ser Thr Asp Glu  
35 40 45  
Thr Val Asn Val Val Asn Asn Tyr Ile Ala Lys His Glu Leu Glu Gly  
50 55 60  
Trp Lys Ile Val Lys Asn Asp Lys Asn Leu Gly Trp Arg Leu Asn Phe  
65 70 75 80  
Arg Gln Leu Leu Ile Asp Val Leu Ala Tyr Glu Val Asp Tyr Val Phe  
85 90 95  
Phe Ser Asp Gln Asp Asp Ile Trp Tyr Leu Asp Lys Asn Glu Arg Gln  
100 105 110  
Phe Ala Ile Met Ser Asp Asn Pro Gln Ile Glu Val Leu Ser Ala Asp  
115 120 125  
Val Asp Ile Lys Thr Met Ser Thr Glu Ala Ser Val Pro His Phe Leu  
130 135 140  
Thr Phe Ser Ser Asp Arg Ile Ser Gln Tyr Pro Lys Val Tyr Asp  
145 150 155 160  
Tyr Gln Thr Phe Arg Pro Gly Trp Thr Ile Ala Met Lys Arg Asp Phe  
165 170 175  
Ala Gln Ala Ile Ala  
180

<210> 107  
<211> 639  
<212> DNA  
<213> Streptococcus agalactiae

<400> 107  
gtgattatgg ataagtctat tcctaaagca actgctaac gtttatcact gtactaccgt 60  
atttttaaac gtttaatac tcatggcatac gaaaaagcta gttccaaaca aattgcagat 120  
gcccttagta tcgattctgc tactgttcga cgtgattttt ctatatttgga tgaacttagga 180  
cgccgtgggt ttggatatac tgtaaaaaaa cttatgaact tcttgcaga aatattgaac 240  
gatcattcta caacaaatgt tatgtggtg gggtgtgaa atatcggtag agctcttttg 300  
cattatcggtt tccacgatcg caataaaatg caaatttcaa tggctttga ttttagatagc 360  
aatgatattag ttggtaaaaac aaccgaggat ggaattcctg tctacggat ttcgactatc 420  
aatgaccatt taatagatag tcatattgaa actgctatcc taacagtacc tagtacagaa 480

gccccagaag ttgctgacat ctttgtcaaa gcaggtataa aaggcatctt gagttttct 540  
ccagttcatt taacattacc aaaagatatc attgttcagt atgttagattt aacaagcgaa 600  
ttacaaaactt tactttattt catgaaccag cagcgataa 639

<210> 108  
<211> 212  
<212> PRT  
<213> Streptococcus agalactiae

<400> 108  
Met Ile Met Asp Lys Ser Ile Pro Lys Ala Thr Ala Lys Arg Leu Ser  
1 5 10 15  
Leu Tyr Tyr Arg Ile Phe Lys Arg Phe Asn Thr Asp Gly Ile Glu Lys  
20 25 30  
Ala Ser Ser Lys Gln Ile Ala Asp Ala Leu Gly Ile Asp Ser Ala Thr  
35 40 45  
Val Arg Arg Asp Phe Ser Tyr Phe Gly Glu Leu Gly Arg Arg Gly Phe  
50 55 60  
Gly Tyr Asp Val Lys Lys Leu Met Asn Phe Phe Ala Glu Ile Leu Asn  
65 70 75 80  
Asp His Ser Thr Thr Asn Val Met Leu Val Gly Cys Gly Asn Ile Gly  
85 90 95  
Arg Ala Leu Leu His Tyr Arg Phe His Asp Arg Asn Lys Met Gln Ile  
100 105 110  
Ser Met Ala Phe Asp Leu Asp Ser Asn Asp Leu Val Gly Lys Thr Thr  
115 120 125  
Glu Asp Gly Ile Pro Val Tyr Gly Ile Ser Thr Ile Asn Asp His Leu  
130 135 140  
Ile Asp Ser Asp Ile Glu Thr Ala Ile Leu Thr Val Pro Ser Thr Glu  
145 150 155 160  
Ala Gln Glu Val Ala Asp Ile Leu Val Lys Ala Gly Ile Lys Gly Ile  
165 170 175  
Leu Ser Phe Ser Pro Val His Leu Thr Leu Pro Lys Asp Ile Ile Val  
180 185 190  
Gln Tyr Val Asp Leu Thr Ser Glu Leu Gln Thr Leu Leu Tyr Phe Met  
195 200 205  
Asn Gln Gln Arg  
210

<210> 109  
<211> 476

<212> DNA

<213> Streptococcus agalactiae

<400> 109

atgggtgcta aaggagcaga tgtcattctc gtttatcac actctggcat tggagatgat 60  
cgatatgaag aaggtgaaga aaacgttggc tatcaaattg ccagcatcaa gggagtggat 120  
gccgttgtta cgggacactc acacgctgaa tttccatcatg gtaacggtac tggcttctat 180  
aaaaataca ctggagttga tggatcaat ggaaaataa atggaacacc tggataatg 240  
gcaggcaagt acggggatca ctttgttattt attgatttag gacttagtta tactaatgga 300  
aatggcaag tctccgaaag cagtctaaa atccgtaaaa ttgatatgaa ctcaacaact 360  
gctgacgagc gtatcattgc attggctaaag gaagcacacg atggcactat caactatg 420  
cgccaacaag taggtacaac aactgcgcca attacaagtt actttgcact agttaa 476

<210> 110

<211> 158

<212> PRT

<213> Streptococcus agalactiae

<400> 110

Met Gly Ala Lys Gly Ala Asp Val Ile Leu Val Leu Ser His Ser Gly  
1 5 10 15

Ile Gly Asp Asp Arg Tyr Glu Glu Gly Glu Asn Val Gly Tyr Gln  
20 25 30

Ile Ala Ser Ile Lys Gly Val Asp Ala Val Val Thr Gly His Ser His  
35 40 45

Ala Glu Phe Pro Ser Gly Asn Gly Thr Gly Phe Tyr Glu Lys Tyr Thr  
50 55 60

Gly Val Asp Gly Ile Asn Gly Lys Ile Asn Gly Thr Pro Val Thr Met  
65 70 75 80

Ala Gly Lys Tyr Gly Asp His Leu Gly Ile Ile Asp Leu Gly Leu Ser  
85 90 95

Tyr Thr Asn Gly Lys Trp Gln Val Ser Glu Ser Ser Ala Lys Ile Arg  
100 105 110

Lys Ile Asp Met Asn Ser Thr Ala Asp Glu Arg Ile Ile Ala Leu  
115 120 125

Ala Lys Glu Ala His Asp Gly Thr Ile Asn Tyr Val Arg Gln Gln Val  
130 135 140

Gly Thr Thr Thr Ala Pro Ile Thr Ser Tyr Phe Ala Leu Val  
145 150 155

<210> 111

<211> 170

<212> DNA

<213> Streptococcus agalactiae

<400> 111

ttgtcaataa ggtttcaaatt cagcttgaaa tatgataaaaa taaaacagat tgtaagtgc 60  
tgtttaagct tgtttttcag agaggtttt atgaatacaa acacaataaa aaagggttgc 120  
gcgactggaa ttggagctgc acttttatac attatagttaa tgcttagttaa 170

<210> 112

<211> 56

<212> PRT

<213> Streptococcus agalactiae

<400> 112

Met Ser Ile Arg Phe Gln Ile Ser Leu Lys Tyr Asp Lys Ile Lys Gln  
1 5 10 15

Ile Val Ser Asp Cys Leu Ser Leu Phe Phe Arg Glu Val Phe Met Asn  
20 25 30

Thr Asn Thr Ile Lys Lys Val Val Ala Thr Gly Ile Gly Ala Ala Leu  
35 40 45

Phe Ile Ile Ile Gly Met Leu Val

50 55

<210> 113

<211> 242

<212> DNA

<213> Streptococcus agalactiae

<400> 113

atgaaacatt taaaatttca atcggttttc gacattatttgc gtcctgttat gattggacca 60  
tcaagtagtc atactgcagg agctgtccgc attggtaaag ttgtccattt tatttttgtt 120  
gaaccttagtg aagtaacctt tcatttatac aattcttttgc ctAAAactta ccaaggacac 180  
ggtaactgata aagcatttgtt tgcaaggatt ctaggaatgg atacagataa tccagatatt 240  
aa 242

<210> 114

<211> 80

<212> PRT

<213> Streptococcus agalactiae

<400> 114

Met Lys His Leu Lys Phe Gln Ser Val Phe Asp Ile Ile Gly Pro Val  
1 5 10 15

Met Ile Gly Pro Ser Ser Ser His Thr Ala Gly Ala Val Arg Ile Gly  
20 25 30

Lys Val Val His Ser Ile Phe Gly Glu Pro Ser Glu Val Thr Phe His  
35 40 45

Leu Tyr Asn Ser Phe Ala Lys Thr Tyr Gln Gly His Gly Thr Asp Lys  
50 55 60

Ala Leu Val Ala Gly Ile Leu Gly Met Asp Thr Asp Asn Pro Asp Ile  
65 70 75 80

<210> 115  
<211> 122  
<212> DNA  
<213> Streptococcus agalactiae

<400> 115  
gtgtcagaag gtgttttaat gtttctaaaa gaagatgacg tagagacttt tcttcataatc 60  
ctgacaaatt catttagcca atttatggca caatttgatt tgtgtcataa ggaaatgatt 120  
aa 122

<210> 116  
<211> 83  
<212> DNA  
<213> Streptococcus agalactiae

<400> 116  
atgacctaca aagattacac aggtttagat cggaactgaac tttttagttaa agtgcgtcat 60  
atgatgtccg acaaacgtt taa 83

<210> 117  
<211> 27  
<212> PRT  
<213> Streptococcus agalactiae

<400> 117  
Met Thr Tyr Lys Asp Tyr Thr Gly Leu Asp Arg Thr Glu Leu Leu Ser  
1 5 10 15  
Lys Val Arg His Met Met Ser Asp Lys Arg Phe  
20 25

<210> 118  
<211> 94  
<212> DNA  
<213> Streptococcus agalactiae

<400> 118  
ctgagttggg tcttgaaaac ggtcctgtca atcatactag ctatcaagga gactaaaatg 60  
tattnagaac aactaaaaga ggtaaaatcct tttaa 94

<210> 119  
<211> 31  
<212> PRT  
<213> Streptococcus agalactiae

<400> 119  
Met Ser Trp Val Leu Glu Thr Val Leu Ser Ile Ile Leu Ala Ile Lys  
1 5 10 15

Glu Thr Lys Met Tyr Leu Glu Gln Leu Lys Glu Val Asn Pro Leu  
20 25 30

<210> 120  
<211> 1230  
<212> DNA  
<213> Streptococcus agalactiae

<400> 120  
gtgaaaaaaaaa aattagtctc atcaactcta aagtgttctc taatcattat tgtagcttt 60  
gctggtgag catttgctag ttttgtcatg aatcataatg acaatattcc aaatggtggt 120  
gtcactaaaa ctatggaaat aaattataat aacataacgc ctacaacaaa agctgttaaa 180  
aaggtaaaaa atatgtttgt ttctgttatac aattataaac aacaagagag tcgttctgac 240  
ctatcagact tctatagtc tttttttgtt aatcagggggg gcaacactga taagggctta 300  
caagttacg gtgaaggctc tggagtcatc tataaaaaaaat atgtaaaaaa tgcctatgtt 360  
gtcaactata accacgtcat tgatggggct aaacaaattt aattcaact agctgatggc 420  
tcaaaagcag ttggaaact tgtaggtca gatacctact ctgatatttc cgctcgtaaa 480  
attccatcag ataaagtttc aaatattgca gaatttgctg attcatcaaa actcaacatt 540  
ggtggaaactg ctatagcgat cggaaagccct cttgaaactg agtatgcaaa ttctgttaact 600  
caaggatttg tatctatggggaaact gtaacaatga ctaatgaaga aggacaaaca 660  
gtttctacaa atgctatcca gacggatgct gctatcaatc ctgtaattt aggtggagca 720  
cttatcaata ttgaaggaca ggttatttggaa attaatttca gtaaaaatttc ttctacatca 780  
aatcaaacctt caggacaatc gtcagggaaat agcgttgaag gtatggatt tgccattcc 840  
tcaaattatgtt ttgttaagat tatcaatcaa cttgagagta acggacaatg agagagac 900  
gctctaggtt tttctatggc tggatttaagt aatttaccat ccgtatgttat tagtaaactg 960  
aaaatcccaa gtaatgttac taatgttattt gtagtagcat ctatccaatc tggcatgcc 1020  
gctcaaggca aactaaagaa atacgatgtc attactaaag ttgacgataa agaagttagca 1080  
tctccaagtg atttacaaag tttactctat ggccaccagg taggggattt cataacagta 1140  
accttttatac gtggtaaaaa taaacaaaaca gtcactataa aacttactaa aactagtaaa 1200  
gatttagcta aacaacgagc aaataactaa 1230

<210> 121  
<211> 409  
<212> PRT  
<213> Streptococcus agalactiae

<400> 121  
Met Lys Lys Lys Leu Val Ser Ser Leu Leu Lys Cys Ser Leu Ile Ile  
1 5 10 15

Ile Val Ser Phe Ala Gly Gly Ala Phe Ala Ser Phe Val Met Asn His  
20 25 30

Asn Asp Asn Ile Pro Asn Gly Gly Val Thr Lys Thr Ser Lys Val Asn  
35 40 45

Tyr Asn Asn Ile Thr Pro Thr Thr Lys Ala Val Lys Lys Val Gln Asn  
50 55 60

Ser Val Val Ser Val Ile Asn Tyr Lys Gln Gln Glu Ser Arg Ser Asp  
 65 70 75 80  
 Leu Ser Asp Phe Tyr Ser His Phe Phe Gly Asn Gln Gly Gly Asn Thr  
 85 90 95  
 Asp Lys Gly Leu Gln Val Tyr Gly Glu Gly Ser Gly Val Ile Tyr Lys  
 100 105 110  
 Lys Asp Gly Lys Asn Ala Tyr Val Val Thr Asn Asn His Val Ile Asp  
 115 120 125  
 Gly Ala Lys Gln Ile Glu Ile Gln Leu Ala Asp Gly Ser Lys Ala Val  
 130 135 140  
 Gly Lys Leu Val Gly Ser Asp Thr Tyr Ser Asp Leu Ala Val Val Lys  
 145 150 155 160  
 Ile Pro Ser Asp Lys Val Ser Asn Ile Ala Glu Phe Ala Asp Ser Ser  
 165 170 175  
 Lys Leu Asn Ile Gly Glu Thr Ala Ile Ala Ile Gly Ser Pro Leu Gly  
 180 185 190  
 Thr Glu Tyr Ala Asn Ser Val Thr Gln Gly Ile Val Ser Ser Leu Lys  
 195 200 205  
 Arg Thr Val Thr Met Thr Asn Glu Glu Gly Gln Thr Val Ser Thr Asn  
 210 215 220  
 Ala Ile Gln Thr Asp Ala Ala Ile Asn Pro Gly Asn Ser Gly Gly Ala  
 225 230 235 240  
 Leu Ile Asn Ile Glu Gly Gln Val Ile Gly Ile Asn Ser Ser Lys Ile  
 245 250 255  
 Ser Ser Thr Ser Asn Gln Thr Ser Gly Gln Ser Ser Gly Asn Ser Val  
 260 265 270  
 Glu Gly Met Gly Phe Ala Ile Pro Ser Asn Asp Val Val Lys Ile Ile  
 275 280 285  
 Asn Gln Leu Glu Ser Asn Gly Gln Val Glu Arg Pro Ala Leu Gly Ile  
 290 295 300  
 Ser Met Ala Gly Leu Ser Asn Leu Pro Ser Asp Val Ile Ser Lys Leu  
 305 310 315 320  
 Lys Ile Pro Ser Asn Val Thr Asn Gly Ile Val Val Ala Ser Ile Gln  
 325 330 335  
 Ser Gly Met Pro Ala Gln Gly Lys Leu Lys Lys Tyr Asp Val Ile Thr  
 340 345 350  
 Lys Val Asp Asp Lys Glu Val Ala Ser Pro Ser Asp Leu Gln Ser Leu  
 355 360 365

Leu Tyr Gly His Gln Val Gly Asp Ser Ile Thr Val Thr Phe Tyr Arg  
370 375 380

Gly Glu Asn Lys Gln Thr Val Thr Ile Lys Leu Thr Lys Thr Ser Lys  
385 390 395 400

Asp Leu Ala Lys Gln Arg Ala Asn Asn  
405

<210> 122

<211> 1923

<212> DNA

<213> Streptococcus agalactiae

<400> 122

atgttaaaat ggtatacaaaa caaaggaggg aggatgataa tgaagaaatg tttttggct 60  
atttgttag ctcttagttt ttttatggtt tcagttcaag cagatgaggt ggactataac 120  
attcctcatt atgagggttaa tctaactatt cacaatgata atagtgcgtga ttttacagag 180  
aaggttactt accaatttga ttcgccctat aatggacagt atgtcacgtt aggtacggcg 240  
ggtaagttat ctgacaattt tgatattaaat aataagccac aggttgaagt ttcaattaat 300  
ggtaaagttaa ggaaagttag ttaccagata gaagatttg aggatggcta ccgtttgaaa 360  
gtgttaatg gtggtaagc aggtgatact gttaaagtc atgttcagtg gaaactaaaa 420  
aatgttctat ttatgcataa ggatgttggt gaacttaact ggattcctat tagcgactgg 480  
gataaaacgt tagagaaaagt agattttgg atatcaactg acaaaaaaggt tgctcttct 540  
cgtcttggg ggcacttggg ttatctaaa actcctccta aaataagaca aaataataat 600  
cgttaccatt tgacagctt taatgttaaac aaacgattt aatttcattt ttattggat 660  
agatcttatt ttaatctacc tacaaacagt aaaaataatt acaagaaaaa aattgaacat 720  
caagagaaga taatagagcg tcatggttt atcctaagtt tcttggtaag gatattatta 780  
ccttcattct ttattattgt gacactattt atctcaatta ggggttcctt gtttagaaaa 840  
aaagttataa aatacgggca attccctaag gatcatcatt tatatgaagc acctgaggac 900  
ctttcaccat tagagttaac tcaaagcatt tatagttatga gctttaaaaa tttcaagat 960  
gaggagaaga aaactcacct tatcgtcaaa gaacaactca tacagtcaat tctattagac 1020  
ttgattgata gaaaagtatt gaattatgat gataacttgt tatctctagc taacttagat 1080  
agagcttctg atgcagaaat agatttata gagtttgc ttgcggattc tacgagttt 1140  
aagccagatc aactctttc taattaccaaa tttagttata aagaaaacact acgtgaactg 1200  
aaaaagcagc acaaggcttc agatctgcaaa aatcaaataatg gacgccgagg aagtaatgcc 1260  
ttatcaagaa ttacgcgtct cacaagggtt atttctaaag acaatataaa ctctcttaga 1320  
agaaaggaa tttcatcccc ttatcgtaaa atgtcttcag aagagtctaa agaattatct 1380  
aggttaaaaaa gattcgtta cctatcacct cttatctt ttgtgtttt aatttatacg 1440  
cttttttaa attatttac ctatttctgt atctatctt tattttttgg tgttatcctg 1500  
ttgttgaata aaatcatttt tatgtatgaca agaaaaataaa gtaacggta tattgttaact 1560  
gaagatggag caagtcgtgt ctaccaatgg actagtttta ggaacatgc aaggatatc 1620  
aaatcgttt atcgttcaga gttagaaaagt atcgttattat ggaatcgaat attggtttac 1680  
gctactttat tcggctacgc tgaccgtgtt gagaaaagtac tcagagtgaa ccaaataatg 1740  
attccagaaa gatttgc当地 cattgatagt catcgatttgc gatttcagt caatcaatct 1800  
agtaatcatt tttcaacgat aactgaagat gttagtcacg cttctaattt tagtgttaat 1860  
tcaggcgggtt cttcaggtgg tttctcaggc ggcggaggcg gcggagggtgg cggtgccttc 1920  
taa 1923

<210> 123

<211> 640

<212> PRT

<213> Streptococcus agalactiae

<400> 123

Met Leu Lys Trp Tyr Thr Asn Lys Gly Gly Arg Met Ile Met Lys Lys  
1 5 10 15

Cys Phe Leu Ala Ile Cys Leu Ala Leu Ser Phe Phe Met Val Ser Val  
20 25 30

Gln Ala Asp Glu Val Asp Tyr Asn Ile Pro His Tyr Glu Gly Asn Leu  
35 40 45

Thr Ile His Asn Asp Asn Ser Ala Asp Phe Thr Glu Lys Val Thr Tyr  
50 55 60

Gln Phe Asp Ser Ser Tyr Asn Gly Gln Tyr Val Thr Leu Gly Thr Ala  
65 70 75 80

Gly Lys Leu Ser Asp Asn Phe Asp Ile Asn Asn Lys Pro Gln Val Glu  
85 90 95

Val Ser Ile Asn Gly Lys Val Arg Lys Val Ser Tyr Gln Ile Glu Asp  
100 105 110

Leu Glu Asp Gly Tyr Arg Leu Lys Val Phe Asn Gly Glu Ala Gly  
115 120 125

Asp Thr Val Lys Val Asn Val Gln Trp Lys Leu Lys Asn Val Leu Phe  
130 135 140

Met His Lys Asp Val Gly Glu Leu Asn Trp Ile Pro Ile Ser Asp Trp  
145 150 155 160

Asp Lys Thr Leu Glu Lys Val Asp Phe Trp Ile Ser Thr Asp Lys Lys  
165 170 175

Val Ala Leu Ser Arg Leu Trp Gly His Leu Gly Tyr Leu Lys Thr Pro  
180 185 190

Pro Lys Ile Arg Gln Asn Asn Asn Arg Tyr His Leu Thr Ala Phe Asn  
195 200 205

Val Asn Lys Arg Leu Glu Phe His Gly Tyr Trp Asp Arg Ser Tyr Phe  
210 215 220

Asn Leu Pro Thr Asn Ser Lys Asn Asn Tyr Lys Lys Ile Glu His  
225 230 235 240

Gln Glu Lys Ile Ile Glu Arg His Gly Phe Ile Leu Ser Phe Leu Leu  
245 250 255

Arg Ile Leu Leu Pro Ser Phe Phe Ile Ile Val Thr Leu Phe Ile Ser  
260 265 270

Ile Arg Val Phe Leu Phe Arg Lys Val Asn Lys Tyr Gly Gln Phe  
275 280 285

Pro Lys Asp His His Leu Tyr Glu Ala Pro Glu Asp Leu Ser Pro Leu  
290 295 300

Glu Leu Thr Gln Ser Ile Tyr Ser Met Ser Phe Lys Asn Phe Gln Asp  
 305                    310                    315                    320  
  
 Glu Glu Lys Lys Thr His Leu Ile Ser Gln Glu Gln Leu Ile Gln Ser  
 325                    330                    335  
  
 Ile Leu Leu Asp Leu Ile Asp Arg Lys Val Leu Asn Tyr Asp Asp Asn  
 340                    345                    350  
  
 Leu Leu Ser Leu Ala Asn Leu Asp Arg Ala Ser Asp Ala Glu Ile Asp  
 355                    360                    365  
  
 Phe Ile Glu Phe Ala Phe Ala Asp Ser Thr Ser Leu Lys Pro Asp Gln  
 370                    375                    380  
  
 Leu Phe Ser Asn Tyr Gln Phe Ser Tyr Lys Glu Thr Leu Arg Glu Leu  
 385                    390                    395                    400  
  
 Lys Lys Gln His Lys Ala Ser Asp Leu Gln Asn Gln Met Arg Arg Arg  
 405                    410                    415  
  
 Gly Ser Asn Ala Leu Ser Arg Ile Thr Arg Leu Thr Arg Leu Ile Ser  
 420                    425                    430  
  
 Lys Asp Asn Ile Asn Ser Leu Arg Arg Lys Gly Ile Ser Ser Pro Tyr  
 435                    440                    445  
  
 Arg Lys Met Ser Ser Glu Glu Ser Lys Glu Leu Ser Arg Leu Lys Arg  
 450                    455                    460  
  
 Phe Ser Tyr Leu Ser Pro Leu Ile Ser Phe Val Val Ile Ile Tyr Thr  
 465                    470                    475                    480  
  
 Leu Phe Leu Asn Tyr Phe Thr Tyr Phe Cys Ile Tyr Leu Leu Phe  
 485                    490                    495  
  
 Gly Val Ile Leu Leu Asn Lys Ile Ile Phe Met Met Thr Arg Lys  
 500                    505                    510  
  
 Ile Ser Asn Gly Tyr Ile Val Thr Glu Asp Gly Ala Ser Arg Val Tyr  
 515                    520                    525  
  
 Gln Trp Thr Ser Phe Arg Asn Met Leu Arg Asp Ile Lys Ser Phe Asp  
 530                    535                    540  
  
 Arg Ser Glu Leu Glu Ser Ile Val Leu Trp Asn Arg Ile Leu Val Tyr  
 545                    550                    555                    560  
  
 Ala Thr Leu Phe Gly Tyr Ala Asp Arg Val Glu Lys Val Leu Arg Val  
 565                    570                    575  
  
 Asn Gln Ile Asp Ile Pro Glu Arg Phe Ala Asn Ile Asp Ser His Arg  
 580                    585                    590  
  
 Phe Ala Ile Ser Val Asn Gln Ser Ser Asn His Phe Ser Thr Ile Thr  
 595                    600                    605

Glu Asp Val Ser His Ala Ser Asn Phe Ser Val Asn Ser Gly Gly Ser  
610 615 620

Ser Gly Gly Phe Ser Gly Gly Gly Gly Gly Gly Ala Phe  
625 630 635 640

<210> 124  
<211> 2712  
<212> DNA  
<213> Streptococcus agalactiae

<400> 124  
atgatgattg tgaataatgg ttatctagaa gggagaaaaa tgaaaaagag acaaaaaata 60  
tggagagggt ttcgtttac ttactaatac ctgtccaaa ttccatttgg tatattggta 120  
caaggtgaaa cccaagatac caatcaagca cttggaaaag taattgttaa aaaaacggga 180  
gacaatgcta caccattagg caaagcgact tttgtgttaa aaaatgacaa tgataagtca 240  
gaaacaagtc acgaaacggt agagggttct ggagaagcaa cctttgaaaaa cataaaacct 300  
ggagactaca cattaagaga agaaacagca ccaattgtt ataaaaaaac tgataaaaacc 360  
tggaaagtta aagttgcaga taacggagca acaataatcg aggttatgga tgcagataaa 420  
gcagagaaaac gaaaagaagt tttgaatgcc caatatccaa aatcagctat ttatgaggat 480  
acaaaagaaaa attacccatt agttaatgtt gagggttcca aagttgttga acaataaaaa 540  
gcattgaatc caataaaatgg aaaagatggt cgaagagaga ttgtctgaagg ttgggttatca 600  
aaaaaaaaatc caggggtcaa tgatctcgat aagaataaaat ataaaattga attaactgtt 660  
gagggtaaaaa ccactgttga aacgaaagaa cttaatcaac cactagatgt cgttgtgcta 720  
ttagataatt caaatatgtt gaataatgaa agagccaata attctcaaag agcattaaaa 780  
gctgggaag cagttgaaaa gctgattgtat aaaattacat caaataaaaga caatagagta 840  
gctctgtga catatgcctc aaccattttt gatggtaactg aagcgaccgt atcaaaggga 900  
gttgcgatc aaaatggtaa agcgttgaat gatagtgtat catgggattt tcataaaact 960  
acttttacag caactacaca taattacagt tattttaaatt taacaaatgtt tgctaacgaa 1020  
gttaatattc taaagtcaag aattccaaag gaagcggagc atataaatgg ggatcgcacg 1080  
ctctatcaat ttggtgccac atttactcaa aaagctctaa tgaaagcaaa tgaaattttt 1140  
gagacacaaa gttctaatgc tagaaaaaaa ctttattttt acgttaactgtt tggtgtccct 1200  
acgatgtctt atgccataaa ttttaatcct tataatataaa cattttacca aaaccagttt 1260  
aattttttt taaataaaaat accagataga agtggatttc tccaaagagga ttttataatc 1320  
aatggtgatg attatcaaatt agtaaaagga gatggagaga gttttaaact gttttcgat 1380  
agaaaagttc ctgttactgg aggaacgaca caagcagctt atcgagtacc gcaaaatcaa 1440  
ctctctgtaa tgagtaatgtt gggatatgca attaatatgtt gatataattttt tctctattgg 1500  
agagattaca actgggtcta tccatttgc tccaaagacca agaaagttt tcacacgaaa 1560  
caaatcaaaa ctcatggtga gccacaaca ttataacttta atgaaaatataa aagacctaaa 1620  
ggttatgaca tttttactgtt tggttattttt gtaaacggag atccgttgc aactcccttt 1680  
gaagctgaga aatttatgca atcaatatca agtaaaacag aaaattatac taatgttgc 1740  
gatacaaata aaatttatgaa tgagctaaat aaataacttta aaacaattgt tgaggaaaaa 1800  
cattcttatttgc ttgtatggaaa tttttttttt gttttttttt gttttttttt gttttttttt 1860  
aaaaatggtc aaagtttac acatgatgtt tacgttttgg ttggaaatgtt tggcagtc 1920  
ttaaaaaatg gtgtggctt tggtggacca aacagtgtt gggaaattttt aaaagatgtt 1980  
acagtgttctt atgataagac atctcaaacc atcaaaaatca atcatttttgc tttttttttt 2040  
ggacaaaaag tagtttttttcttac ctatgttgc cgtttttttt gttttttttt gttttttttt 2100  
ttttacaata caaataatcg tacaacgcta agtccgaaga gtggaaaaa accaaataact 2160  
attcgttgcatt tcccaatttttcc caaaaatttttgc gatgttgc gttttttttt gttttttttt 2220  
agtaatcaga agaaaatggg tgagttgaa tttttttttt gttttttttt gttttttttt gttttttttt 2280  
gaatcgctt tgggagctt gttttttttt gttttttttt gttttttttt gttttttttt gttttttttt 2340

caatttgttc cagagggaag tgatgttaca acaaagaatg atggtaaaat ttatTTaaa 2400  
gcacttcaag atggtaacta taaattata gaaatttcaa gtccagatgg ctatataag 2460  
gttaaacacga aacctgttgt gacattaca attcaaaatg gagaagttac gaacctgaaa 2520  
gcagatccaa atgctaataa aaatcaaatac gggttatctt aaggaaatgg taaacatctt 2580  
attacaaca ctccccaaacg cccaccaggt gttttccta aaacaggggg aattggtaca 2640  
attgtctata tatttagttgg ttctactttt atgataactta ccatttgttc ttccgtcgt 2700  
aaacaattgt aa 2712

<210> 125  
<211> 903  
<212> PRT  
<213> Streptococcus agalactiae

<400> 125  
Met Met Ile Val Asn Asn Gly Tyr Leu Glu Gly Arg Lys Met Lys Lys  
1 5 10 15  
Arg Gln Lys Ile Trp Arg Gly Leu Ser Val Thr Leu Leu Ile Leu Ser  
20 25 30  
Gln Ile Pro Phe Gly Ile Leu Val Gln Gly Glu Thr Gln Asp Thr Asn  
35 40 45  
Gln Ala Leu Gly Lys Val Ile Val Lys Lys Thr Gly Asp Asn Ala Thr  
50 55 60  
Pro Leu Gly Lys Ala Thr Phe Val Leu Lys Asn Asp Asn Asp Lys Ser  
65 70 75 80  
Glu Thr Ser His Glu Thr Val Glu Gly Ser Gly Glu Ala Thr Phe Glu  
85 90 95  
Asn Ile Lys Pro Gly Asp Tyr Thr Leu Arg Glu Glu Thr Ala Pro Ile  
100 105 110  
Gly Tyr Lys Lys Thr Asp Lys Thr Trp Lys Val Lys Val Ala Asp Asn  
115 120 125  
Gly Ala Thr Ile Ile Glu Gly Met Asp Ala Asp Lys Ala Glu Lys Arg  
130 135 140  
Lys Glu Val Leu Asn Ala Gln Tyr Pro Lys Ser Ala Ile Tyr Glu Asp  
145 150 155 160  
Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser Lys Val Gly  
165 170 175  
Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp Gly Arg Arg  
180 185 190  
Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Asn Pro Gly Val Asn Asp  
195 200 205  
Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu Gly Lys Thr  
210 215 220

Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val Val Val Leu  
225 230 235 240

Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn Asn Ser Gln  
245 250 255

Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile Asp Lys Ile  
260 265 270

Thr Ser Asn Lys Asp Asn Arg Val Ala Leu Val Thr Tyr Ala Ser Thr  
275 280 285

Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val Ala Asp Gln  
290 295 300

Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr His Lys Thr  
305 310 315 320

Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn Leu Thr Asn  
325 330 335

Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro Lys Glu Ala  
340 345 350

Glu His Ile Asn Gly Asp Arg Thr Leu Tyr Gln Phe Gly Ala Thr Phe  
355 360 365

Thr Gln Lys Ala Leu Met Lys Ala Asn Glu Ile Leu Glu Thr Gln Ser  
370 375 380

Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp Gly Val Pro  
385 390 395 400

Thr Met Ser Tyr Ala Ile Asn Phe Asn Pro Tyr Ile Ser Thr Ser Tyr  
405 410 415

Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp Arg Ser Gly  
420 425 430

Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr Gln Ile Val  
435 440 445

Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg Lys Val Pro  
450 455 460

Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro Gln Asn Gln  
465 470 475 480

Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser Gly Tyr Ile  
485 490 495

Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe Asp Pro Lys  
500 505 510

Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His Gly Glu Pro  
515 520 525

Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly Tyr Asp Ile  
530 535 540

Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala Thr Pro Leu  
545 550 555 560

Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr Glu Asn Tyr  
565 570 575

Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu Asn Lys Tyr  
580 585 590

Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp Gly Asn Val  
595 600 605

Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys Asn Gly Gln  
610 615 620

Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp Gly Ser Gln  
625 630 635 640

Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp Gly Gly Ile  
645 650 655

Leu Lys Asp Val Thr Val Thr Tyr Asp Lys Thr Ser Gln Thr Ile Lys  
660 665 670

Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val Leu Thr Tyr  
675 680 685

Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe Tyr Asn Thr  
690 695 700

Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu Pro Asn Thr  
705 710 715 720

Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg Glu Phe Pro  
725 730 735

Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val Glu Phe Ile  
740 745 750

Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly Ala Lys Phe  
755 760 765

Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln Phe Val Pro  
770 775 780

Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile Tyr Phe Lys  
785 790 795 800

Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser Ser Pro Asp  
805 810 815

Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe Thr Ile Gln  
820 825 830

Asn Gly Val Thr Asn Leu Lys Ala Asp Pro Asn Ala Asn Lys Asn  
835 840 845

Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile Thr Asn Thr  
850 855 860

Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly Ile Gly Thr  
865 870 875 880

Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu Thr Ile Cys  
885 890 895

Ser Phe Arg Arg Lys Gln Leu  
900

<210> 126

<211> 1251

<212> DNA

<213> Streptococcus agalactiae

<400> 126

atgaatagaa aagttgagga aaaaatggct gggaatcgta ataacgatat gaatgtctat 60  
tgttcattt gtggcaaaag ccaagatgaa gtaaaaaaaaa ttattgcagg taatgggttt 120  
ttcatttgta atgaatgtgt ggccttatca caagaaaatta ttaaggaaga attagctgag 180  
gaagtactgg ctcatatggc agaagtacca aaacctaagg aactattaga aatattaaat 240  
caatatgttg tagggcaaga tcgtgctaaa cgtgcttttag cagttgctgt ctacaatcat 300  
tacaagcgtg ttagttatac cgagagtagt gacgatgtg tagatttgca aaaatccaac 360  
attttgcgtg ttgggtccac tggctcagga aaaaccttct tagcacaaac actggctaaa 420  
agccttaatg taccgtttgc tattgcagat gcgacttcat tgaccgaagc aggatacggt 480  
ggagaagatg ttgagaatat tcttcctaaa ttgattcaag ctgctgatta taatgtcgaa 540  
cgtgctgagc gtggatttat ctacgttgc gaaatagata aaattgctaa gaaaggcgaa 600  
aatgtttcta tcacacgtgta tgtgtctggc gaaggtgtac agcaagccct tcttaaaatt 660  
attgagggta cgtagcaag tgccccca cagggtggc gtaaacatcc taaccaagaa 720  
atgattcaaa ttaataccaa gaacatcctt ttattgtcg gtggtcttt tgatggatt 780  
gaagacctg tgaagcaacg tttaggcgaa aaagttattt gtttggaca gacaaggcgt 840  
aaaattgtat acaacgcttc ttatatgcaaa gagataattt ctgaggatat tcaaaagttt 900  
ggactgattc cagatgtt tggccgtta ccagtagttt cagcgtttaga acttcttact 960  
gcagaagatc tggttcgat tctgacagaa ccacgcaatg cttggttaa acaataccaa 1020  
accttattat ttatgtatgg tgtagaattt gatattgacc aggtatgtct attggctatc 1080  
gctgataagg ctatcgagcg caagactggc gcacgtgtt tacgttctat tattgaagaa 1140  
acgtatgtt atatcatgtt taaaattcca agccaagaag atgtaaacaaa agttcgatc 1200  
acaaaggctg ctgttgaggg tactgacaag cctgttttag agacggctta g 1251

<210> 127

<211> 416

<212> PRT

<213> Streptococcus agalactiae

<400> 127

Met Asn Arg Lys Val Glu Glu Lys Met Ala Gly Asn Arg Asn Asn Asp  
1 5 10 15

Met Asn Val Tyr Cys Ser Phe Cys Gly Lys Ser Gln Asp Glu Val Lys  
20 25 30

Lys Ile Ile Ala Gly Asn Gly Val Phe Ile Cys Asn Glu Cys Val Ala  
           35                  40                  45  
 Leu Ser Gln Glu Ile Ile Lys Glu Glu Leu Ala Glu Glu Val Leu Ala  
       50                  55                  60  
 His Leu Ala Glu Val Pro Lys Pro Lys Glu Leu Leu Glu Ile Leu Asn  
   65                  70                  75                  80  
 Gln Tyr Val Val Gly Gln Asp Arg Ala Lys Arg Ala Leu Ala Val Ala  
       85                  90                  95  
 Val Tyr Asn His Tyr Lys Arg Val Ser Tyr Thr Glu Ser Ser Asp Asp  
   100                  105                  110  
 Asp Val Asp Leu Gln Lys Ser Asn Ile Leu Met Ile Gly Pro Thr Gly  
   115                  120                  125  
 Ser Gly Lys Thr Phe Leu Ala Gln Thr Leu Ala Lys Ser Leu Asn Val  
   130                  135                  140  
 Pro Phe Ala Ile Ala Asp Ala Thr Ser Leu Thr Glu Ala Gly Tyr Val  
   145                  150                  155                  160  
 Gly Glu Asp Val Glu Asn Ile Leu Lys Leu Ile Gln Ala Ala Asp  
   165                  170                  175  
 Tyr Asn Val Glu Arg Ala Glu Arg Gly Ile Ile Tyr Val Asp Glu Ile  
   180                  185                  190  
 Asp Lys Ile Ala Lys Lys Gly Glu Asn Val Ser Ile Thr Arg Asp Val  
   195                  200                  205  
 Ser Gly Glu Gly Val Gln Gln Ala Leu Leu Lys Ile Ile Glu Gly Thr  
   210                  215                  220  
 Val Ala Ser Val Pro Pro Gln Gly Gly Arg Lys His Pro Asn Gln Glu  
   225                  230                  235                  240  
 Met Ile Gln Ile Asn Thr Lys Asn Ile Leu Phe Ile Val Gly Gly Ala  
   245                  250                  255  
 Phe Asp Gly Ile Glu Asp Leu Val Lys Gln Arg Leu Gly Glu Lys Val  
   260                  265                  270  
 Ile Gly Phe Gly Gln Thr Ser Arg Lys Ile Asp Asp Asn Ala Ser Tyr  
   275                  280                  285  
 Met Gln Glu Ile Ile Ser Glu Asp Ile Gln Lys Phe Gly Leu Ile Pro  
   290                  295                  300  
 Glu Phe Ile Gly Arg Leu Pro Val Val Ala Ala Leu Glu Leu Leu Thr  
   305                  310                  315                  320  
 Ala Glu Asp Leu Val Arg Ile Leu Thr Glu Pro Arg Asn Ala Leu Val  
   325                  330                  335

Lys Gln Tyr Gln Thr Leu Leu Ser Tyr Asp Gly Val Glu Leu Glu Phe  
340 345 350

Asp Gln Asp Ala Leu Leu Ala Ile Ala Asp Lys Ala Ile Glu Arg Lys  
355 360 365

Thr Gly Ala Arg Gly Leu Arg Ser Ile Ile Glu Glu Thr Met Leu Asp  
370 375 380

Ile Met Phe Glu Ile Pro Ser Gln Glu Asp Val Thr Lys Val Arg Ile  
385 390 395 400

Thr Lys Ala Ala Val Glu Gly Thr Asp Lys Pro Val Leu Glu Thr Ala  
405 410 415

<210> 128

<211> 786

<212> DNA

<213> Streptococcus agalactiae

<400> 128

atgaaaag tacataaact gtttataacc gtaattgcta cattaggtat gttggggta 60  
atgaccttg gtcttccaac gcagccgcaa aacgtaacgc cgatagtaca tgctgatgtc 120  
aattcatctg ttgatacggag ccagaattt caaaataatt taaaaatgc tattggtaac 180  
ctaccatttc aatatgttaa tggtattttat gaatttaata ataatcagac aaatttaaat 240  
gctgatgtca atgttaaagc gtatgtcaa aatacaattt acaatcaaca aagactatca 300  
actgctaattg caatgcttga tagaaccatt cgtcaatatac aaaatcgtag agataccact 360  
cttcccgatg caaattggaa accatttagt tggcatcaag tagtactaa tgaccattat 420  
gggcatgcag tcgacaagg gcatttaatt gcctatgctt tagctggaaa tttcaaagg 480  
tgggatgctt ccgtgtcaaa tcctcaaaaat gttgtcacac aaacagctca ttccaaaccaa 540  
tcaaatcaaa aatcaatcg tggacaaaaat tattatgaaa gcttagttcg taaggcggtt 600  
gaccaaaaca aacgtgttcg ttaccgtgt aactccattgt accgtaatga tactgattta 660  
gttccatttg caatgcaccc agaagctaaa tcacaagatg gcacattaga atttaatgtt 720  
gctattccaa acacacaagc atcatacact atggattatg caacaggaga aataacacta 780  
786  
aattaa

<210> 129

<211> 261

<212> PRT

<213> Streptococcus agalactiae

<400> 129

Met Lys Arg Leu His Lys Leu Phe Ile Thr Val Ile Ala Thr Leu Gly  
1 5 10 15

Met Leu Gly Val Met Thr Phe Gly Leu Pro Thr Gln Pro Gln Asn Val  
20 25 30

Thr Pro Ile Val His Ala Asp Val Asn Ser Ser Val Asp Thr Ser Gln  
35 40 45

Glu Phe Gln Asn Asn Leu Lys Asn Ala Ile Gly Asn Leu Pro Phe Gln  
 50 55 60  
 Tyr Val Asn Gly Ile Tyr Glu Leu Asn Asn Gln Thr Asn Leu Asn  
 65 70 75 80  
 Ala Asp Val Asn Val Lys Ala Tyr Val Gln Asn Thr Ile Asp Asn Gln  
 85 90 95  
 Gln Arg Leu Ser Thr Ala Asn Ala Met Leu Asp Arg Thr Ile Arg Gln  
 100 105 110  
 Tyr Gln Asn Arg Arg Asp Thr Thr Leu Pro Asp Ala Asn Trp Lys Pro  
 115 120 125  
 Leu Gly Trp His Gln Val Ala Thr Asn Asp His Tyr Gly His Ala Val  
 130 135 140  
 Asp Lys Gly His Leu Ile Ala Tyr Ala Leu Ala Gly Asn Phe Lys Gly  
 145 150 155 160  
 Trp Asp Ala Ser Val Ser Asn Pro Gln Asn Val Val Thr Gln Thr Ala  
 165 170 175  
 His Ser Asn Gln Ser Asn Gln Lys Ile Asn Arg Gly Gln Asn Tyr Tyr  
 180 185 190  
 Glu Ser Leu Val Arg Lys Ala Val Asp Gln Asn Lys Arg Val Arg Tyr  
 195 200 205  
 Arg Val Thr Pro Leu Tyr Arg Asn Asp Thr Asp Leu Val Pro Phe Ala  
 210 215 220  
 Met His Leu Glu Ala Lys Ser Gln Asp Gly Thr Leu Glu Phe Asn Val  
 225 230 235 240  
 Ala Ile Pro Asn Thr Gln Ala Ser Tyr Thr Met Asp Tyr Ala Thr Gly  
 245 250 255  
 Glu Ile Thr Leu Asn  
 260

<210> 130  
 <211> 621  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 130  
 atgaaaaact atcgaaaact tattgtacta ctacttctaa tctttttgc catttttatg 60  
 ggagcatatg cttacacgca tatttgtcaa aaaagatccc taactagcaa tactattgaa 120  
 aaaactctac ctgtggtaaa tcagattaag cctcaaacc a taaaagaata cccaaattac 180  
 ttaactaagg tagctaaacg taatgttctt cctgtagaca ttcctcaggc attaaataat 240  
 gaaaaggttag aaattactgc tactgatggc atgcaaacat tcacttgaa tgataaaaat 300  
 aatccctaagc aaaaggatcat ttttatgtt catggaggat cataatatcca tcaagcttcc 360

gaattacaat atattttgt caataaacta gctaaaaat tagatgcaaa agttgtctt 420  
cctatttacc ctaaagctcc tacatataat tatagtgatg ctatccccaa aattaaaaaa 480  
ttataccaaa atacattagc tagcgtcaca tctcacaaac agattatcct agtaggtgaa 540  
agtgcaggcg gaggccttgc tttaggtatt gctgataacc ttgcacggag catatcaaac 600  
aacccaaaaga aattatTTTA a 621

<210> 131  
<211> 206  
<212> PRT  
<213> Streptococcus agalactiae

<400> 131  
Met Lys Asn Tyr Arg Lys Leu Ile Val Leu Leu Leu Ile Phe Phe  
1 5 10 15  
Ala Ile Phe Met Gly Ala Tyr Ala Thr His Ile Val Glu Lys Arg  
20 25 30  
Ser Leu Thr Ser Asn Thr Ile Glu Lys Thr Leu Pro Val Val Asn Gln  
35 40 45  
Ile Lys Pro Gln Thr Ile Lys Glu Tyr Gln Asn Tyr Leu Thr Lys Val  
50 55 60  
Ala Lys Arg Asn Val Leu Pro Val Asp Ile Pro Gln Ala Leu Asn Asn  
65 70 75 80  
Glu Lys Val Glu Ile Thr Ala Thr Asp Gly Met Gln Thr Phe Thr Trp  
85 90 95  
Asn Asp Lys Asn Asn Pro Lys Gln Lys Val Ile Phe Tyr Val His Gly  
100 105 110  
Gly Ser Tyr Ile His Gln Ala Ser Glu Leu Gln Tyr Ile Phe Val Asn  
115 120 125  
Lys Leu Ala Lys Lys Leu Asp Ala Lys Val Val Phe Pro Ile Tyr Pro  
130 135 140  
Lys Ala Pro Thr Tyr Asn Tyr Ser Asp Ala Ile Pro Lys Ile Lys Lys  
145 150 155 160  
Leu Tyr Gln Asn Thr Leu Ala Ser Val Thr Ser His Lys Gln Ile Ile  
165 170 175  
Leu Val Gly Glu Ser Ala Gly Gly Leu Ala Leu Gly Ile Ala Asp  
180 185 190  
Asn Leu Ala Arg Ser Ile Ser Asn Asn Gln Lys Lys Leu Phe  
195 200 205

<210> 132  
<211> 885  
<212> DNA

<213> Streptococcus agalactiae

<400> 132

ttgattctaa taacttccta tggataata tcattatcac aaaaatttag ggaatttatt 60  
atgaagttaa aacatattgt cttaggatta gccttaacaa cacttttagg agtcacattt 120  
agtaatcaag aagttcagc aagctcaact tcaagtaaag ttgttaaagt tggtgttatg 180  
acctttctg acactgaaaa agcacgttgg gataaaattg aaaagctagt aggtgataaa 240  
gctaaaatca aatttacaga atttacagat tatacacaac caaatcaagc gacagccat 300  
aaggatgtgg atattaatgc ctttcaacat tacaatttct tagaaaactg gaataaggaa 360  
aataagaaaa acttaattcc acttgaaaag acttacttag ctccaattcg tatctattct 420  
gagaaggtaa aatctcttaa aaaattgaaa aaaggagcca ctattgcaat tccaaatgtat 480  
gcaacaaatg gtagccgtgc attgtatgtc cttcagtcag caggttaat caaattgaaat 540  
gtttctggta agaagggtgc aacagttgc aatatcacat ctaataaaaa ggatattaaat 600  
attcaggagt tagatgcgag tcaaacacca cgtgcactca aagatgtaga tgcagctatt 660  
attaataata catacattga gcaagctaat taaaacctt cagatgctat ctttgtgag 720  
aaatcagata aaaattcaaa acaatggatt aatatcattg cgggacgtaa aaattgaaaa 780  
aagaaaaaga acgctaaagc tatccaagct atcttggatg cttatcacac agatgaagtg 840  
aaaaaaagttt tcaaagatac ttcagctgat attccacaat ggtaa 885

<210> 133

<211> 294

<212> PRT

<213> Streptococcus agalactiae

<400> 133

Met Ile Leu Ile Thr Ser Tyr Gly Ile Ile Ser Leu Ser Gln Lys Leu  
1 5 10 15

Arg Glu Phe Ile Met Lys Leu Lys His Ile Val Leu Gly Leu Ala Leu  
20 25 30

Thr Thr Leu Leu Gly Val Thr Phe Ser Asn Gln Glu Val Ser Ala Ser  
35 40 45

Ser Thr Ser Ser Lys Val Val Lys Val Gly Val Met Thr Phe Ser Asp  
50 55 60

Thr Glu Lys Ala Arg Trp Asp Lys Ile Glu Lys Leu Val Gly Asp Lys  
65 70 75 80

Ala Lys Ile Lys Phe Thr Glu Phe Thr Asp Tyr Thr Gln Pro Asn Gln  
85 90 95

Ala Thr Ala Asn Lys Asp Val Asp Ile Asn Ala Phe Gln His Tyr Asn  
100 105 110

Phe Leu Glu Asn Trp Asn Lys Glu Asn Lys Lys Asn Leu Ile Pro Leu  
115 120 125

Glu Lys Thr Tyr Leu Ala Pro Ile Arg Ile Tyr Ser Glu Lys Val Lys  
130 135 140

Ser Leu Lys Lys Leu Lys Lys Gly Ala Thr Ile Ala Ile Pro Asn Asp  
145 150 155 160

Ala Thr Asn Gly Ser Arg Ala Leu Tyr Val Leu Gln Ser Ala Gly Leu

165	170	175	
Ile Lys Leu Asn Val Ser Gly Lys Lys Val Ala Thr Val Ala Asn Ile			
180	185	190	
Thr Ser Asn Lys Lys Asp Ile Asn Ile Gln Glu Leu Asp Ala Ser Gln			
195	200	205	
Thr Pro Arg Ala Leu Lys Asp Val Asp Ala Ala Ile Ile Asn Asn Thr			
210	215	220	
Tyr Ile Glu Gln Ala Asn Leu Lys Pro Ser Asp Ala Ile Phe Val Glu			
225	230	235	240
Lys Ser Asp Lys Asn Ser Lys Gln Trp Ile Asn Ile Ile Ala Gly Arg			
245	250	255	
Lys Asn Trp Lys Lys Gln Lys Asn Ala Lys Ala Ile Gln Ala Ile Leu			
260	265	270	
Asp Ala Tyr His Thr Asp Glu Val Lys Lys Val Ile Lys Asp Thr Ser			
275	280	285	
Ala Asp Ile Pro Gln Trp			
290			

<210> 134  
<211> 1350  
<212> DNA  
<213> *Streptococcus agalactiae*

<400> 134  
 atgtcaaatc aatatgatta tatcgattt ggtggaggtt gtgcaggcag tggtaaccgt 60  
 aatagggcag ccatgtatgg agcaaaaatgc ctgttaattt aagggtggaca agtaggttga 120  
 acttgttta acttaggtt tgtagcttaaaatcatgt ggtatggtgc acaagttct 180  
 gagacactcc ataagtatac ttccagggtt ggaaaaaaatggc ccaataatct tagtttgat 240  
 tttactactc taaaagctaa tcgcgtatgc tacgtgcagc ggtctagaca gtcgtatgcc 300  
 gctaattttg agcgtaatgg ggtcgaaaaag attgtatggat ttgctcgat 360  
 catactattt aagtgaatgg tcagcaatataaagctcc acattactat tgcaacagg 420  
 ggacaccctc ttaccctga tattatttggaa agtgaactt gttgagactt 480  
 tttggatggg agaccttacc aaattctata ttgattgtt gggccccctaaatcttgcatt 540  
 gaacctgctg gagtggttaa tgaatttaggc gttgaaaccc atcttgcatt tagaaaaagac 600  
 catattctac gggatttga tgacatggta acaagtggg ttatggctga aatggagaaa 660  
 tcaggatct cttacatgc taaccatgtt cctaaatctc ttaaacgcga tgaagggtggc 720  
 aagttgattt ttgaagctga aaatggaaaa acgcttgc ttgatcgtgt aatatgggct 780  
 atcgccgtg gaccatgtt agacatgggat cttggaaaata ccgtatattgt tttaaatgat 840  
 aaagattata tcaaaacaga tgaatttggaaataacttctg tagatggcgt gtatgctatt 900  
 ggagatgtt atggaaaaat tgccttgaca ccggtagcaa ttgcaggcagg tcgtcgctta 960  
 tcagaaagac ttttaatca taaagataac gaaaaattttttag attaccataa tgcgtatctca 1020  
 gttatttttta ctcaccctgt aattgggacg gtggactttt cagaaggcagc agctatcgag 1080  
 caattttggaa aagataatataaagcttat acatcaactt ttaccccttat gttacccgtt 1140  
 gttaccagta atcgccaaacg agttaagatg aagctcataa cccttagaaaaa agagggaaaaaa 1200  
 gttattttggc ttcatggtgt tggttatggattgtatggaa tgattcaagg ttttcagtt 1260  
 gctatcaaaa tgggggctac taaagcagac ttgtatgtatccgtat tcacccaact 1320  
 qqatctqagg aattttgttac aatgcgctaa 1350

<210> 135

<211> 449

<212> PRT

<213> Streptococcus agalactiae

<400> 135

Met Ser Asn Gln Tyr Asp Tyr Ile Val Ile Gly Gly Gly Ser Ala Gly  
1 5 10 15

Ser Gly Thr Ala Asn Arg Ala Ala Met Tyr Gly Ala Lys Val Leu Leu  
20 25 30

Ile Glu Gly Gly Gln Val Gly Gly Thr Cys Val Asn Leu Gly Cys Val  
35 40 45

Pro Lys Lys Ile Met Trp Tyr Gly Ala Gln Val Ser Glu Thr Leu His  
50 55 60

Lys Tyr Ser Ser Gly Tyr Gly Phe Glu Ala Asn Asn Leu Ser Phe Asp  
65 70 75 80

Phe Thr Thr Leu Lys Ala Asn Arg Asp Ala Tyr Val Gln Arg Ser Arg  
85 90 95

Gln Ser Tyr Ala Ala Asn Phe Glu Arg Asn Gly Val Glu Lys Ile Asp  
100 105 110

Gly Phe Ala Arg Phe Ile Asp Asn His Thr Ile Glu Val Asn Gly Gln  
115 120 125

Gln Tyr Lys Ala Pro His Ile Thr Ile Ala Thr Gly Gly His Pro Leu  
130 135 140

Tyr Pro Asp Ile Ile Gly Ser Glu Leu Gly Glu Thr Ser Asp Asp Phe  
145 150 155 160

Phe Gly Trp Glu Thr Leu Pro Asn Ser Ile Leu Ile Val Gly Ala Gly  
165 170 175

Tyr Ile Ala Ala Glu Leu Ala Gly Val Val Asn Glu Leu Gly Val Glu  
180 185 190

Thr His Leu Ala Phe Arg Lys Asp His Ile Leu Arg Gly Phe Asp Asp  
195 200 205

Met Val Thr Ser Glu Val Met Ala Glu Met Glu Lys Ser Gly Ile Ser  
210 215 220

Leu His Ala Asn His Val Pro Lys Ser Leu Lys Arg Asp Glu Gly Gly  
225 230 235 240

Lys Leu Ile Phe Glu Ala Glu Asn Gly Lys Thr Leu Val Val Asp Arg  
245 250 255

Val Ile Trp Ala Ile Gly Arg Gly Pro Asn Val Asp Met Gly Leu Glu

260	265	270
Asn Thr Asp Ile Val Leu Asn Asp Lys Asp Tyr Ile Lys Thr Asp Glu		
275	280	285
Phe Glu Asn Thr Ser Val Asp Gly Val Tyr Ala Ile Gly Asp Val Asn		
290	295	300
Gly Lys Ile Ala Leu Thr Pro Val Ala Ile Ala Ala Gly Arg Arg Leu		
305	310	315
Ser Glu Arg Leu Phe Asn His Lys Asp Asn Glu Lys Leu Asp Tyr His		
325	330	335
Asn Val Pro Ser Val Ile Phe Thr His Pro Val Ile Gly Thr Val Gly		
340	345	350
Leu Ser Glu Ala Ala Ala Ile Glu Gln Phe Gly Lys Asp Asn Ile Lys		
355	360	365
Val Tyr Thr Ser Thr Phe Thr Ser Met Tyr Thr Ala Val Thr Ser Asn		
370	375	380
Arg Gln Ala Val Lys Met Lys Leu Ile Thr Leu Gly Lys Glu Glu Lys		
385	390	395
Val Ile Gly Leu His Gly Val Gly Tyr Gly Ile Asp Glu Met Ile Gln		
405	410	415
Gly Phe Ser Val Ala Ile Lys Met Gly Ala Thr Lys Ala Asp Phe Asp		
420	425	430
Asp Thr Val Ala Ile His Pro Thr Gly Ser Glu Glu Phe Val Thr Met		
435	440	445

**Arg**

<210> 136  
 <211> 1317  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 136  
 atgagtatca aaaaaagtgt gattggttt tgcctcgaa ctgcagcatt atcaatgttt 60  
 gcttgttag acagtagtc aatctgttat gctgccgaga aggataaagt cgaattacg 120  
 tggtgggctt ttccaaacctt tactcaagaa aaggctaagg atggagtagg tacttatgag 180  
 aaaaaagtca tcaaggctt tgaaaagaaa aatcctaata taaaagtaaa actagagaca 240  
 attgattca catctggacc tgaaaaatc actacagcaa ttgaagcagg gacagcacct 300  
 gatgtgctt ttgatgcacc agggcgaatt attcaatatg gtaaaaatgg taaattagca 360  
 gatttgaatg atttatttac agaccaattt attaaggatg tcaataataa gaacatcatt 420  
 caagcttcta agtctggca taaagcctac atgtatccaa taagttctgc cccattttat 480  
 atggcgttca ataaaaaaaaat gcttaaagat gcaggagtt tgaaacttgt aaaagaaggt 540  
 tggactacta gtgatttga aaaagtacta aaagcactaa aaaataaaagg ctatacacca 600  
 ggttcattct ttgcaaaacgg gcaaggagga gatcaaggac cacgtgcatt ttttgcta 660

ctttatagtg ctccaataac agataaaagaa gtaacaaaat ataccactga cactaaaaat 720  
tctgtaaaat caataaaaa aatagttgaa tggattaaga aaggctactt gatgaatggg 780  
tctcagtatg atggctcagc tgacattcaa aacttcgcca atggacaaaac tgcttcact 840  
atccatggg ctccagctca accaaaaact caagcaaaaat tattagagtc aagtaaagtg 900  
gattacctg aagtgccatt cccatcagaa gatggaaaac cagatttaga ataccttgtt 960  
aatggtttg cggctttaa taataaagat gaaaacaaag taaaaggctc taagaaattt 1020  
atcacttttta ttgctgatga taaaaatgg ggaccaaaag atgttatacg tacaggtgct 1080  
ttcccagtttta gaacatcatt tgggatctt tataaaggtg ataaacgtat gatgaagatt 1140  
tcaaaaatgga ctcaatatta ttcaccatat tacaacacta tcgatggatt ttctgaaatg 1200  
agaaccttat ggttcccaat ggttcaatct gtatccaatg gtatgaaaaa accagcagat 1260  
gcttgaaag actttactca aaaagcaaat gataccatta aaaaagcagc taaataa 1317

<210> 137

<211> 438

<212> PRT

<213> Streptococcus agalactiae

<400> 137

Met Ser Ile Lys Lys Ser Val Ile Gly Phe Cys Leu Glu Ala Ala Ala  
1 5 10 15

Leu Ser Met Phe Ala Cys Val Asp Ser Ser Gln Ser Val Met Ala Ala  
20 25 30

Glu Lys Asp Lys Val Glu Ile Thr Trp Trp Ala Phe Pro Thr Phe Thr  
35 40 45

Gln Glu Lys Ala Lys Asp Gly Val Gly Thr Tyr Glu Lys Lys Val Ile  
50 55 60

Lys Ala Phe Glu Lys Lys Asn Pro Asn Ile Lys Val Lys Leu Glu Thr  
65 70 75 80

Ile Asp Phe Thr Ser Gly Pro Glu Lys Ile Thr Thr Ala Ile Glu Ala  
85 90 95

Gly Thr Ala Pro Asp Val Leu Phe Asp Ala Pro Gly Arg Ile Ile Gln  
100 105 110

Tyr Gly Lys Asn Gly Lys Leu Ala Asp Leu Asn Asp Leu Phe Thr Asp  
115 120 125

Gln Phe Ile Lys Asp Val Asn Asn Lys Asn Ile Ile Gln Ala Ser Lys  
130 135 140

Ser Gly Asp Lys Ala Tyr Met Tyr Pro Ile Ser Ser Ala Pro Phe Tyr  
145 150 155 160

Met Ala Phe Asn Lys Lys Met Leu Lys Asp Ala Gly Val Leu Lys Leu  
165 170 175

Val Lys Glu Gly Trp Thr Thr Ser Asp Phe Glu Lys Val Leu Lys Ala  
180 185 190

Leu Lys Asn Lys Gly Tyr Thr Pro Gly Ser Phe Phe Ala Asn Gly Gln  
195 200 205

Gly Gly Asp Gln Gly Pro Arg Ala Phe Phe Ala Asn Leu Tyr Ser Ala  
 210 215 220  
 Pro Ile Thr Asp Lys Glu Val Thr Lys Tyr Thr Thr Asp Thr Lys Asn  
 225 230 235 240  
 Ser Val Lys Ser Met Lys Lys Ile Val Glu Trp Ile Lys Lys Gly Tyr  
 245 250 255  
 Leu Met Asn Gly Ser Gln Tyr Asp Gly Ser Ala Asp Ile Gln Asn Phe  
 260 265 270  
 Ala Asn Gly Gln Thr Ala Phe Thr Ile Leu Trp Ala Pro Ala Gln Pro  
 275 280 285  
 Lys Thr Gln Ala Lys Leu Leu Glu Ser Ser Lys Val Asp Tyr Leu Glu  
 290 295 300  
 Val Pro Phe Pro Ser Glu Asp Gly Lys Pro Asp Leu Glu Tyr Leu Val  
 305 310 315 320  
 Asn Gly Phe Ala Val Phe Asn Asn Lys Asp Glu Asn Lys Val Lys Ala  
 325 330 335  
 Ser Lys Lys Phe Ile Thr Phe Ile Ala Asp Asp Lys Lys Trp Gly Pro  
 340 345 350  
 Lys Asp Val Ile Arg Thr Gly Ala Phe Pro Val Arg Thr Ser Phe Gly  
 355 360 365  
 Asp Leu Tyr Lys Gly Asp Lys Arg Met Met Lys Ile Ser Lys Trp Thr  
 370 375 380  
 Gln Tyr Tyr Ser Pro Tyr Tyr Asn Thr Ile Asp Gly Phe Ser Glu Met  
 385 390 395 400  
 Arg Thr Leu Trp Phe Pro Met Val Gln Ser Val Ser Asn Gly Asp Glu  
 405 410 415  
 Lys Pro Ala Asp Ala Leu Lys Asp Phe Thr Gln Lys Ala Asn Asp Thr  
 420 425 430  
 Ile Lys Lys Ala Ala Lys  
 435

<210> 138  
 <211> 40  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 138

cgagatctga tatctcacaa acagataacg gcgtaaatag 40

<210> 139  
<211> 43  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 139  
gaagatcttc cccgggatca caaacagata acggcgtaaa tag 43

<210> 140  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 140  
cgagatctga tatccatcac aaacagataa cggcgtaaat ag 42

<210> 141  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 141  
cgggatcctt atggacctga atcagcgttg tc 32

<210> 142  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 142  
ggatgcttg tttcagggtgt atc 23

<210> 143  
<211> 82  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 143

catgatatacg gtacctcaag ctcatatcat tgtccggcaa tggtgtggc tttttttgtt 60  
tttagccgata acaatttcac ac 82

<210> 144

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 144

gcggatcccc cgggcttaat taatgtttaa acactagtcg aagatctcg 60  
gtgtgaaatt gttatccgct a 81

<210> 145

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 145

cggccagggtt ttcccaagtca cgac

24

<210> 146

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 146

tcaaaaaaaaaa ggagccatgt

20

<210> 147

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 147

tctgtatgttg tgtgaaatttg tg

22

<210> 148

<211> 26  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Primer  
  
<400> 148  
tccggctcgt atgttgtgtg gaattg

26

<210> 149  
<211> 43  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Primer  
  
<400> 149  
aagtatcaga tctgatatct cacaacaga taacggcgta aat

43

<210> 150  
<211> 46  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Primer  
  
<400> 150  
aagtatcaga tttccccgg gatcacaaac agataacggc gtaaaat

46

<210> 151  
<211> 45  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Primer  
  
<400> 151  
aagtatcaga tctgatatcc atcacaaaca gataacggcg taaaat

45

<210> 152  
<211> 24  
<212> DNA  
<213> Staphylococcus aureus  
  
<400> 152  
tcacaaacag ataacggcgta aaat

24

<210> 153

<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 153    40  
cgggatccgc caccatgacc acttctcaag ctgttttagc

<210> 154  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 154    31  
ttgcggccgc acgattatca acaaagttct g

<210> 155  
<211> 41  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 155    41  
cggatccgcc accatggcta ctcataattgg aagttaccag c

<210> 156  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 156    35  
ttgcggccgc agggtttatt tggtgaagtg tcttg

<210> 157  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 157    40  
cggatccgcc accatgtatc tataatcattt accaatggcc

<210> 158  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 158  
ttgcggccgc tttatgtata gaaacagcag tccc 34

<210> 159  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 159  
cggatccgccc accatgaaaag gaagaacaac ctattcgaaa ag 42

<210> 160  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 160  
ttgcggccgc aagagcaaat tttcgatct cctc 34

<210> 161  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 161  
cggatccgccc accatgattt ttggacacgg aattt 35

<210> 162  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 162  
ttgcggccgc ttttcttcc tccaaaataa cactagc 37

<210> 163  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 163  
cgatatccgacc accatggcga ctaaagagtt aggtgttag 39

<210> 164  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 164  
ttgcggccgc tatagtttta gtttcaactt gtctagatg 39

<210> 165  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 165  
cgggatccac catgtatacg agtttacaac caaatcatg 39

<210> 166  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 166  
ttgcggccgc gtcagctcgt actgttttt tagc 34

<210> 167  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer  
  
<400> 167  
cggatccgcc accatgtgtc aaatgaatag tgaacataaa ag 42

<210> 168  
<211> 34  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Primer  
  
<400> 168  
ttgcggccgc ctcaaataat ttacctccaa ttcg 34

<210> 169  
<211> 39  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Primer  
  
<400> 169  
cggatccgcc accatggctc cattcgaatt taaagattc 39

<210> 170  
<211> 34  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Primer  
  
<400> 170  
ttgcggccgc tgatttacca gtttggaaaga gttc 34

<210> 171  
<211> 44  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Primer  
  
<400> 171  
cggatccgcc accatgaata ctatttataa tacattgaga acag 44

<210> 172

<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 172  
ttgcggccgc ttctttgttc caactttctg g

31

<210> 173  
<211> 41  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 173  
cggatccgcc accatgatag agtggattca aacacattta c

41

<210> 174  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 174  
ttgcggccgc tttatgactc aagcgacgtg tta

33

<210> 175  
<211> 43  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 175  
cggatccgcc accatggagt tagtaattag agatattcgt aag

43

<210> 176  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 176  
ttgcggccgc cttgtcatat tcatctccct tcaac

35

<210> 177  
<211> 43  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 177  
cggatccgcc accatggcta gttttgtcat gaatcataat gac 43

<210> 178  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 178  
ttgcggccgc gttatttgct cgttgttag ctaaatc 37

<210> 179  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 179  
cggatccgcc accatggctc ttagttttt tatggtttca gttcaagc 48

<210> 180  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 180  
ttgcggccgc gaaggcacccg ccacctcc 28

<210> 181  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 181  
cggatccgcc accatgggtg aaacccaaga taccaatcaa gc 42

<210> 182  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 182  
ttgcggccgc aacacctggt gggcgtttgg 30

<210> 183  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 183  
cggatccgcc accatggctg ggaatcgtaa taacg 35

<210> 184  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 184  
ttgcggccgc agccgtctct aaaacaggct tg 32

<210> 185  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 185  
cggatccgcc accatgcttc caacgcagcc gcaaaaac 37

<210> 186  
<211> 41  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 186  
ttgcggccgc attagtgtt atttctcctg ttgcataatc c 41

<210> 187  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 187  
cgggatccac catgtacacg catattgttg aaaaaaag 37

<210> 188  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 188  
ttgcggccgc aaataattc ttttgttgt ttg 33

<210> 189  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 189  
cgatccgcc accatgagta atcaagaagt ttcagcaagc 40

<210> 190  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 190  
ttgcggccgc ccattgtgga atatcagctg aag 33

<210> 191

<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 191  
cgatatccgcc accatgggtgc aggcaagtggt accgct 36

<210> 192  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 192  
ttgcggccgc ggcattgtta acaaattcct cag 33

<210> 193  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 193  
cgggatccac catggctgcc gagaaggata aag 33

<210> 194  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 194  
ttgcggccgc attattttc tgctttttta atgg 34

<210> 195  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 195  
cgggatccac catgtgtcag gttgttatg caagtttc 39

<210> 196  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 196  
ttgcggccgc tttactaatt gataaaagagc aacctcg

37

<210> 197  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 197  
ggggtaacccgg ccaccatggc tgaagtaatt tcaggaagt

39

<210> 198  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 198  
cggaattccg ttaatcctct tttttctta gaaacagat

39

<210> 199  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 199  
cgggatccgc caccatg

17

<210> 200  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 200  
ttgcggccgc 10

<210> 201  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 201  
atggaaaaaa atacttgaa aaaattac 28

<210> 202  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 202  
ctattttgtt ttagcgatgt ctttatac 27

<210> 203  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 203  
atgtcaaaac aaaaagtaac ggcaac 26

<210> 204  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 204  
ttatttatgg ccaataccat aagttaattg 30

<210> 205  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 205  
atgaaaaaaag tttttttctt catggctatg 30

<210> 206  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 206  
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<210> 207  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 207  
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<210> 208  
<211> 24  
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<220>  
<223> Description of Artificial Sequence: Primer

<400> 208  
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<210> 209  
<211> 31  
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<220>  
<223> Description of Artificial Sequence: Primer

<400> 209  
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<210> 210

<211> 27  
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<220>  
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<210> 212  
<211> 27  
<212> DNA  
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<220>  
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<400> 212  
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